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The Magazine Devoted Exclusively to the Visual Idea in Education

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IN THIS ISSUE

The Guidance Laboratory Production at Teachers' College

The Development and Needs of Visual Aids in Chemical Education

Visual Aids in Teaching Certain Elements of Critical Thinking

(Conclusion of Proceedings of Department of Visual Instruction Meeting)

Summer Courses in Visual Instruction

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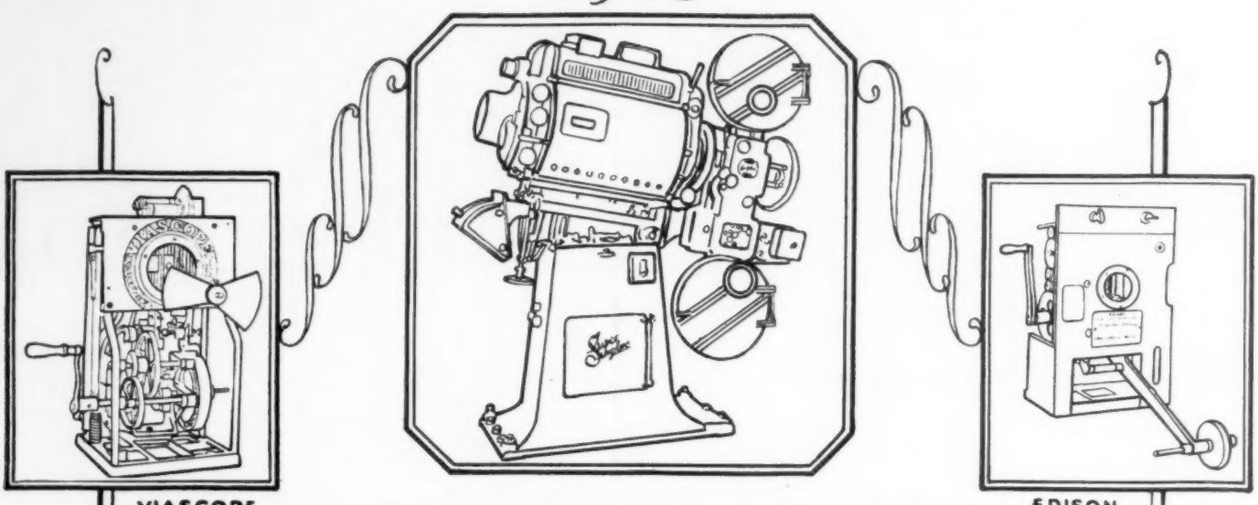

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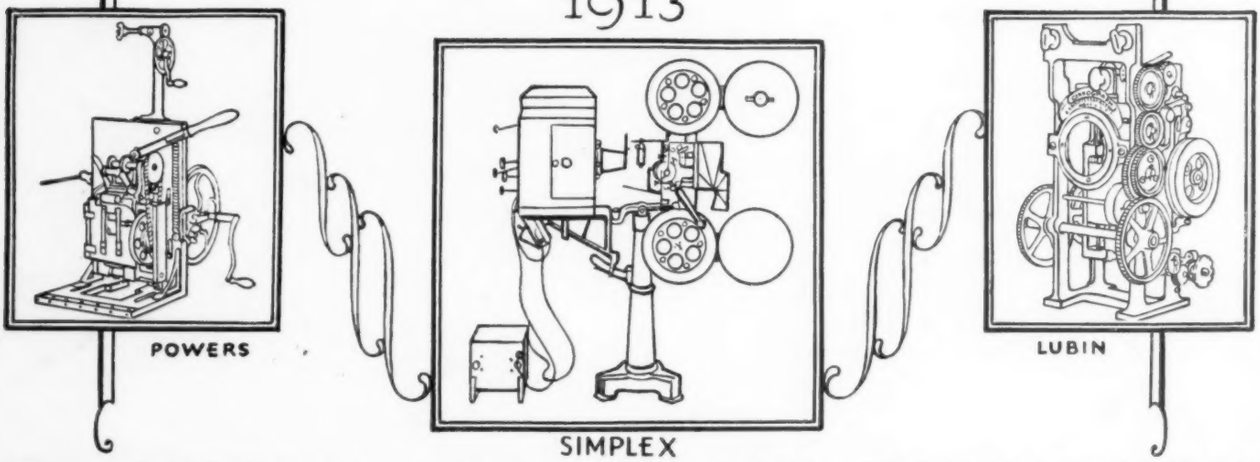

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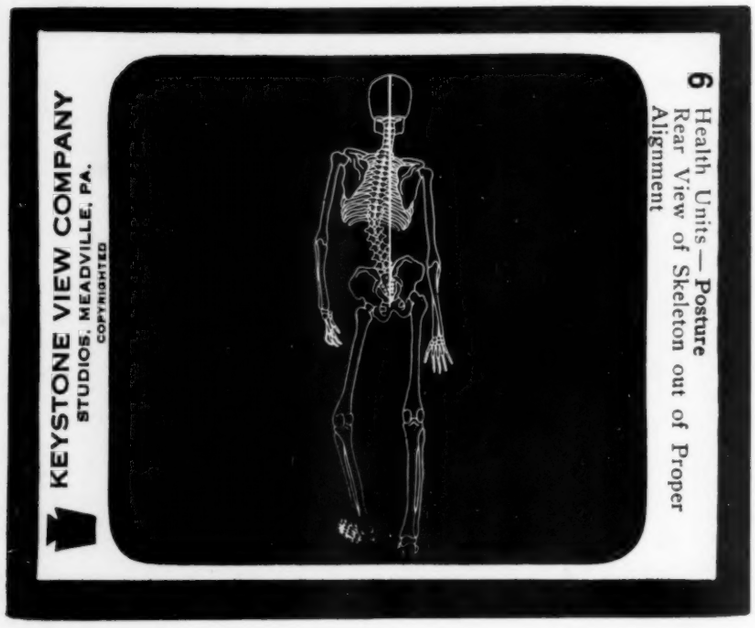

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The Guidance Laboratory Production at Teachers' College

Technical problems arising in the local production of educational films, and their solutions

By EDWARD ANHALT
Educational Cinematographer, New York City

THERE is little doubt that *Problem Child*, the first ambitious film attempted at Teachers' College, Columbia University, was a valuable experience, if nothing else. The completed portions of the film are now in use as part of the psychology curriculum and, as such, have some limited immediate value. For the most part however, the production was conceived as an experiment to test the feasibility of producing a talking film with a somewhat complex plot and theme outside the studio. I wish, therefore, to tell the story of its production for the guidance of those who may enter upon similar or related projects in time to come.

To begin with, the College possesses elaborate and expensive 16 mm sound motion picture equipment. It is beautiful mechanically, but the product of several different manufacturers who, because they themselves are still in the experimental stage, have not co-ordinated with each other. Thus, I found the camera too noisy for the recorder, and the microphone multi-directional in pickup, recording background reverberations and street noises with a resounding clatter. Moreover, the wiring in the lights, unused to the sort of treatment received in more or less professional work, burned, fizzed and shorted with unfailing regularity. The camera possessed none of the primary requisites of the professional camera: silence, ability to change focus and exposure while in operation, accurate and clear parallax or finder-lens, co-ordination in closeups, and the capacity to move or truck smoothly as on a crane.

The latter factor was the springboard from which the picture jumped. Since I criticised the somewhat static camera technique of the College's first tests with the equipment and was asked for constructive suggestions, I offered the idea of a psychological theme using advanced (that is, advanced for the educational film) technique and pleading that the sound-film in its educational usage should go beyond the mere recording of interviews, teaching techniques, etc.

Between Psychology Interne James Dunlap, Scenarist Edna Thompson and myself we developed a script, running seventy minutes or so, involving some fifty child actors, exteriors, classroom, home and laboratory sets and the presentation of a theme revolving around the subconscious hatred of men on the part of a mother, causing her overtly to resent her son as a substitute for her conventional inability to express resentment of her husband. I asked for some thousands of dollars, for additional equipment and the full co-operation of anyone who might conceivably help in meeting the necessities of the script. We received several hundred dollars and permission to make one reel to "see what will happen".

Dr. Esther Lloyd-Jones, the Director of the Laboratory, and myself then wrote a shooting script and after some truly Herculean efforts on the part of the former rounded all the pre-shooting details into shape. Meanwhile Dr. Leta Hollingworth had become interested, and through her good offices and those of Superintendent Greenberg of the Board of Education we secured the Board's permission to use the children of the Experimental Classes for Rapid Learners at Speyer School, P.S. 500, for our cast and the school itself as a set.

Once this was established we found the commercial and governmental agencies necessary to our story extremely co-operative. I began to shoot the first sequence, a montage of urban life surrounding the petty bourgeois background in which we had placed Johnny, the problem boy. This culminated in a montage of children of varying national and class backgrounds waking, getting dressed, etc., and walking to school through the city streets. These scenes were taken in my own home, rearranged to represent seven different locales.

In directing the children I explained the more subtle psychological factors of a sequence quite fully. This procedure is radically different from the conventional technique of directing child actors which often uses a totally foreign and unrelated stimulus to produce the desired reaction more or less mechanically. Of course, the children in this case were extremely gifted (130-200 Stanford-Benet), but I am certain from a few brief hours spent in directing children of sub-normal intelligence that frankness and a thorough explanation of what is going on will produce the best results.

On screening the rushes the sound was so impossible that it was decided to post-synchronize. I rewrote the script to omit front angles, revealing lip movements and high key face lighting whenever possible. Also I constructed a dolly or moving truck mounted on miniature balloon tires to get a smoother moving camera.

Following the montage Johnny appears bidding his mother goodbye in the presence of his sister who is obviously the favored child, and fighting with both for the possession of a toy gun to which he

clings throughout the film as an escape symbol. Our greatest difficulty in photographing this scene arose out of the fact that we could obtain only D.C. current and therefore could not use the A.C. camera motor. I had to resort to spring winding and this caused a jumpiness between the stops and starts that were necessary for rewinding. Various motors and transformers should be on hand for such exigencies.

The sequence was completed with faults common to non-studio production. Necessarily awkward lighting conditions caused a flatness; lack of make-up rendered the faces somewhat chalky and the already mentioned inability to focus while shooting caused the actors to blur as they moved in and out of the set focus.

Johnny's difficulties are further delineated in his walk to school. He remains apart from the other children. His solitary play habits demonstrate a tendency toward withdrawal and introversion. These scenes were the most successful of the picture; however, our difficulties may be noted in passing; the lack of time allotted to us necessitated our taking a dozen or so children on location at once. These together with the cameras caused large crowds to collect delaying our work considerably. This will occur almost any time cameras are set up. It is essential to have a large enough staff to guard against such interference. Also, cracks in the pavements caused our dolly to jump frequently ruining many moving shots. A well sprung professional dolly is necessary for this type of work. Commercial producers will lay rails and shoot from a kind of flat car to achieve smoothness over rough ground.

The next sequence carries Johnny into the classroom. Here he shows nervousness and fear of being called on during the lesson, and resorts to the trick of throwing his pencil on the floor and pretending to look for it in order to escape notice. During the entire sequence I kept the camera largely on Johnny, cutting in short shots of the teacher somewhat maliciously savoring his discomfort, the other pupils laughing at him and his sister snubbing his seeming stupidity. This had the double effect of showing Johnny's reactions to the others more or less continuously and permitting the then unrecorded sound track to tell what was going on without showing faces and lips and running the danger of poor synchronization.

As the scenes progress the shots become shorter until Johnny's complete inability to read his lesson and his finally bursting into tears are the only lengthy shots between distorted flashes of sister, mother and daughter in threatening attitudes.

In these last scenes there were serious difficulties. One, children would forget or find it impossible to wear the same clothes on successive shooting days. This caused a number of so-called 'movie-boners.' Two, it was impossible to light the large classrooms adequately or obtain a wide enough camera angle for inclusive shots. Three, the lights became unbearably hot and one actually exploded. This put a stop to the use of lights altogether and the remaining scenes were taken without artificial illumination.

The end of the school semester and other committments of mine ended work on the picture here. If the rest of the story, which, briefly, is the therapy performed on both Johnny and the mother by the Guidance Laboratory and the psychological situation shot from the distorted viewpoints of both subjects, is to be completed it will be necessary to do all of the earlier sequences over, since many of the children and the mother have moved to other parts of the country.

It is probable, however, that this will be postponed until greater funds are available. Meanwhile,

A scene from "Problem Child"

The Advanced School of Education at Teachers' College has purchased from me a script for a documentary film on the new developments in the Activity Program in the schools. This would indicate that for the present, production will be in more established channels but from the experience just related there can be little question that the field of the story film and the talking story film is completely open to progressive educators.

The script in question is given in full below. It was written for the purpose of amplifying the concept of the Activity Program in the minds of Teachers and Teachers in training. Production will begin at the Speyer School, the experimental unit conducted jointly by Teachers College and the Board of Education of New York City, when further funds are available. In addition to the indicated score and effects a commentation, largely intended to clarify spatial and temporal transitions, may be utilized.

As distinguished from a scenario, which may be described as a thematic or ideologic statement together with a very general continuity, this is a 'shooting script'—a shot by shot description together with camera directions and actor movements. (For those not familiar with technical film terms a *pan* is a movement of the camera on its own axis; A *truck* or *dolly* is a movement of the entire camera along a path previously marked, generally following moving action; A *zoom-pan* is a fast swinging move-

ment culminating in a sudden stop; A *dissolve* involves the appearance of one scene beneath another before the latter has completely faded out).

Shooting Script For A Projected Film

1.) *Fadein.* The music room. *Near view* of music teacher leading. Children in foreground. *Fadein* of singing: Come Take A Ride in My Flying Machine.

2.) *Wide angle* of class singing.

3.) *Slow pan* along row of children singing.

4.) *Dissolve* from last child singing to same child, gazing intently down and moving arm in writing or painting. *Truck back* revealing his absorption in aviation mural. *Truck along* showing four others working with him on mural spread on floor.

5.) *Truck closeup* of Mural. The children are putting the finishing touches on it. It is the first section.

6.) *Move* with second section as it is raised by hands to blackboard. *Truck back* to view it as hands tack it up.

7.) Third section on wall. *Truck* its length and *truck slowly back* to children sitting in attitudes of intense absorption. *Pan* to *closeup* of boy in helmet stepping from chair in reenactment of Lindbergh's landing at Le Bourget. Boy: "I am Charles A. Lindbergh." He pulls a letter from his pocket. *Truck* to *near view* as he hands it to boy in top hat, supposedly Ambassador Herrick.

8.) Class, some standing, give cheers. *Zoom-pan* to Lindbergh and Herrick shaking hands. Cheers fade. *Fade.*

9.) Book opening. Child's hand extracting news clipping.

10.) Ditto.

11.) Ditto.

12.) *Medium view.* Teacher motions to child to come up.

13.) *Low angle.* Child stands and walks forward.

14.) *Front view.* Child reading from clipping. "The world's non-stop flight record was broken yesterday by....., starting from..... and landing at..... The distance covered.....kilometers." *Pan* to teacher as he stops. Teacher: "How many miles is that children?"

15.) Class waving hands.

16.) *From behind,* child at blackboard, working out the problem. Teacher's voice: "What per cent further is that than the previous record we read about? Who remembers the previous rcord?"

17.) First child finishes problem. *Truck back* to include second starting hers at next board.

18.) *Low angle* of child figuring on black board.

19.) *Wide angle,* class figuring on paper. *Pan up* to full black board of children. Quick *dissolve* to board covered with figures.

20.) Teacher walks into frames and slowly pulls down map of world over figures. *Dissolve* to:

20a) Girl pointing plane route on map.

21.) *Shot* of pointer crossing map. Child's voice: "First the fliers crossed Iraq here, etc."

22.) *From above* children placing airplanes on clap maps.

23.) *Near view* child at globe in front of bulletin board on which is pinned the itinerary of the non-stop flight. *Pan down* as he bends forward and removes plane on pin from globe and turns it, looking for new position.

24.) *Microshot* of plane skimming slowly over map in child's fingers. *Fade* to:

26.) *Wide angle* of class absorbed in film, projector cutting a swathe of light through center of frame. *Truck back* to screen, plane zooms into camera. *Dissolve* to:

27.) Model plane zooming into camera.

28.) *Medium view.* Child A picking it up in doorway of shop. Child B walking in next to him. A walks out of frame as we *move* with B bending to hitch the door.

29.) Pick up A walking, *pan* slightly *ahead* to his removing pliers from table loaded with tools.

30.) B at work table begins to bend down. A comes into frame and places tool on table. B comes up with incomplete air ship tower.

31. *From* slightly *above* four children come in doorway, splitting in different directions.

32.) *Pick up* little colored boy walking in closeup. He turns his back. *Pan up* with hands as he stretches to remove paint from shelf.

33.) *Longer view,* three other children about table. One holds object to light paint brush in hand, other points to it in discussion. Third mixing paints.

34.) *Further forward* in entrance, remaining children pour in, several in animated conservation with shop teacher.

35.) *Pan* with two children carrying heavy object through crowd of children talking and working with great energy.

36.) Teacher bending over hangar with boy who is painting. Child comes up from behind and taps his shoulder. Teacher turns around and the child comes to left. Another enters frame carrying airplane under discussion. Both begin to question teacher about it. *Slow pan* from them completely around the room over all groups. *Fade* of picture and score to:

36.) to 50.) Short *candid closeups* of individuals and groups functioning as unit. It is suggested that commentation would be most valuable here.

51.) *Last candid,* child operating plane, movement of other children in background. Commentation *fades* to score. Child works plane in accelerating tempo.

52.) *Closeup* of bell ringing.

53.) *Wide angle* of all. Teacher raises hand for stoppage and motions for the things to be put away as some turn towards him; others continuing work.

54.) Child C *from behind* casts quick look over shoulder and resumes work very rapidly.

55.) Teacher in center of clamoring group motions for stoppage to child D. *Pan down* side to child raising hand in gesture asking for more time.

56.) Tool table. Two children, A and another, place tools on it.

57.) B bends down and replaces air ship tower in chest.

58.) C stops, draws breath and admires his work.

59.) D lays down his tool and blows his nose.

60.) *Side above* aforementioned two children lifting heavy object from table and walking back through children gathering equipment together.

61.) Tool table. Hands placing tools down.

62.) Legs crowding and walking out through doorway.

63.) Brush sweeping shavings. *Pan up* and *truck away* to *long view* of child sweeping as another enters frame with carrier to pick up the refuse. *Fade* score and picture to commentation to effect that children are dismissed and leave now on an excursion to airport (life activity).

64.) *Fadein.* Children leaving school, entering bus. Door closing.

65.) *Interior* of bus; airport becomes visible.

66.) Children leaving bus, being greeted by officials.

67-85.) *Candid shots* of places visited and individual reactions and group reactions.

86.) Finally a really large plane is wheeled out and the children gather around it, asking the pilot questions, poking it, touching its surface, climbing on it, etc.

87.) The field officer gives the order to clear the runway.

88.) The children retreat.

89.) Passengers are loaded into the plane.

90.) The propellors are twirled, the motor is started, the roar is heard.

91.) The children are dwarfed considerably by the thundering plane.

92.) *Closeup* of a field officer giving all clear signal.

(*Concluded on page* 167)

The Development and Needs of Visual Aids in Chemical Education*

Summarizing the progress made in photographic and projection equipment, with suggestions for improvement in the use of visual aids.

By LOUIS A. ASTELL
University High School, Urbana, Illinois

AMONG the more important facts related to language and pictures, is the evidence that for sixty centuries the language of the written word has been with us. This accounts in some measure for our abiding veneration for the printed word above other types of symbols. The first book was printed some five centuries ago, while the first text book including pictures appeared some three centuries ago. It is interesting to note that the camera obscura was described by Leonardo da Vinci a century before the illustrated text book made its appearance.

The chemical process of photography, representing the basis of so much that is visual in education today, had its origin in 1837, just a century ago. The epochal work of Daguerre in Paris and Talbot in England can not be over-estimated in terms of present day developments and needs. The first motion picture machine was sold 31 years ago, and yet as Charters has pointed out, "the motion picture has reached a wider audience than print."

For the sake of clarification, I would like to assume the validity of Weber's definition of a visual aid as "The representation of an object, a situation, or relationship in either two-dimensional line or three-dimensional form, which when it accompanies language, tends to make the latter more interesting, intelligible, and impressive." Thus the stock shelf in the chemistry laboratory becomes a more efficient visual aid when the cardboard cartons are replaced by standardized and carefully labeled glass bottles wherever possible. From such shelves, students may see and associate the chemicals more readily with verbal and other symbolical ideas. It should be added, however, that no matter how well such a shelf has been developed, it will not serve efficiently as a visual aid unless teaching methods and procedures take it into full account. Efficient classroom usage calls for a thorough understanding on the part of the teacher, of the inherent possibilities and limitations of each type of visual aid.

The growth in usage of visual aids, in the more restricted sense of the term, has been phenomenal considering the economic crisis and its dire effects on the schools of the nation. The American Council on Education has shown that by 1935, there were 10,097 silent and 793 sound projectors for motion pictures in approximately 9,000 of our 280,000 public and private schools. The records of the Visual Aids Service, a central library of educational films and slides operating under the Division of University Extension of the University of Illinois, are arresting. With the beginning of the bureau's first academic year of service, 1932-1933, there were 97 bookings of 16mm. film. Five years later, the bookings for the academic year, 1936-1937 were approximately 9,000 for the same type of film.

When we stop to think of the daily use we make of pictures we soon see what an important place they have in our normal life activities. Thus we note the picture sections of the daily papers; the conspicuous role of cartoons and comic strips; the highly developed use of pictures based on researches conducted by advertising companies as a means of obtaining attention, discrimination, and memory leading directly to sales; to say nothing of the phenomenal sale of such periodicals as "Life" and the staggering attendance at the motion picture theatres even in the period of our greatest economic stress. Through sundry courses, then, we arrive at an understanding of why visual aids should have an important place in the classroom.

Significant Developments

In photography, the prediction of "lenses and films of vastly increased speed, with three dimensional screening, and with natural full color" which I made seven years ago has become more or less commonplace. Doctor Arthur D. Little reports the reduction of exposure time to a millionth of a second. Applied to chemistry, Doctor Little points to the value of such photography in obtaining useful pictures on the formation of chemical materials and then securing significant information from them, and concludes with these words: "A future of industrial usefulness is apparently in store for high-speed photography applied to time as the microscope and telescope have been applied to space."

In the field of micro-photography and projection, the recent developments have been equally amazing. Goetz and Romer, of the California Institute of Technology, have developed an apparatus suited to microcinematography of such things as the determination of the falling speed of suspended colloid

*An abstract of a paper read before the Division of Chemical Education and History of Chemistry at the Omaha meeting, April 30, 1937.

particles in an ultra-microscope, and of the growth of etch figures on crystal planes produced by electrolysis. Loveland and others of the Eastman Kodak and the Bausch and Lomb Research Laboratories have developed a 16mm. camera with a beam splitter eye-piece making it possible to observe the action and the field while the picture is being made.

Other recent developments in photography include work in metals at high heat; stroboscopic photography; cineradiography; and laminography by way of X-rays. This latter development, at the hands of Doctor Sherwood More, has been hailed as "the greatest single step ahead in diagnosis of disease since the discovery of X-rays by William Conrad Roentgen more than forty years ago." Obviously, the records from all such instruments will be found indispensable for purposes of scientific study and for teaching.

In projection as well as in photographic equipment there have been astounding improvements. Several years ago, with only 35mm. projectors from which to choose, the high cost of such equipment greatly limited its use. Today, the 16mm. equipment is rapidly replacing the 35mm. type, and increasing use is being made of 8mm. equipment.

In the field of still pictures, lantern projection for photographic work, both in black and white, and in Kodachrome, may shift with many advantages to the 2" by 2" slide. Film-slide projectors may be had in design suited to the showing of single and double frame pictures printed on 35mm. stock and so designed that the film-slide may be rotated with reference to the light source. Further, the 2" by 2" lantern slide may be used in place of the film-slide. This type of machine, incidentally, may also be had with the sound unit as an integral part and in such form is being used rather widely in sales and in other commercial work. The simplicity, efficiency, and inexpensive aspects of film-slide equipment are sure to meet with wide acceptance once the possibilities are generally understood.

A most significant idea involving the film-slide is that of making copies of books, photographed page by page, on a continuous roll of film, and stored in one fortieth of the space which the corresponding volume would require. Thus, a dozen or more libraries of the country have subscribed to a plan of the Committee of the American Library Association for filming all the British Museum library books printed in English before 1550. With special projectors designed to magnify the film image to normal book-page size, the implications for education in general are of great importance. Among these implications are the following:

(1) Thesis material which has represented a library problem and which, heretofore, has often been inaccessible may now be reproduced from the typed copy and made available in less bulky form.
(2) Saving in time for travel to various campuses and countries to obtain information.
(3) Since duplicates of these compact biblio-films may be made at relatively small cost, there are material economic savings for the student.

Improved opaque projectors may be had as independent units, or in combination with standard stereopticans. The standard stereoptican will continue to serve in its province which includes the use of inexpensive or hand-made lantern slides.

In the field of 16mm. silent motion pictures, the Eastman series of teaching films represents an outstanding development in recent years. The value of these and other silent films of merit should not be lost from sight in our enthusiasm for the more pretentious sound film. The most important single source of sound films for educational use is Erpi Picture Consultants, Inc. Sound films together with the radio and the silent film or film-slide represent possibilities for an intermediate step toward television. There are many ways in which the sound film will stand as inherently suited to classroom needs. It is significant to see that we are beginning to have some examples of both silent and sound films which embody the fund of research that has been accumulating on the subject of what an educational picture should be like.

For the practical school administrator in the average secondary school situation, the question is now what it has always been, that of present expedients. The salaries of classroom teachers in many if not in most states are still under previous ranges, and in some areas they are very much below. It is obvious that we must always have teachers, and the better they are the less expensive they are in the long run. Paying for classroom teachers is a first consideration, and is a sufficient justification for recommending dependable equipment that is less expensive to maintain and to operate. In handling any equipment there are less expensive ways to be considered. As a matter of sound economy, for example, we need to avoid as far as possible the use of less expensive silent films in the more expensive sound machines.

The nature of the learner must always be taken into account regardless of the kind of aid which is used. "The planning of the learning exercise which will result in advantageous use of visual aids," says Umstattd in his text on *Secondary School Teaching*, "requires of the teacher much specific knowledge and many definite skills." But the proper use of visual aids implies a more extensive foundation than is implied by an understanding of the types of visual aids, their mechanical possibilities and limitations, and their correlation with each other as well as with the subject matter. An adequate understanding of the role of these aids implies a re-evaluation of the characteristics of the learner. To such ends, Doctor L. L. Thurstone has been accumulating evidence concerning "perceptual speed" and "visualization" as primary abilities; Doctor G. T. Bushwell, through eye-movement analyses, is able to follow the simple survey types of perceptual experience into analytical and other types of experience representing desired outcomes; and Doctor Ralph M. Barnes, through the studies of the human body in relation to "time and motion." It seems certain that as educators we may well be concerned with the learning process as it manifests itself

through both internal and external responses; with what Alexis Carroll calls, the whole personality.

Significant Needs

Textbooks, teacher training, teacher organization, and experimental studies represent four agencies through which much may be done to improve the usage of visual aids in the immediate future. Except for the lower elementary grades there appear to be few books illustrated with three-dimension or stereographic views and vitalized sketches which begin to approach Doctor Lemon's striking book entitled, *From Galileo to Cosmic Rays*. Again, authors of few books have made use of the criterion of a challenging question under each picture used for the purpose of directing the learning process or of stimulating interest and driving power necessary to aid the future citizens of the nation. Another suggestion is found in the Neurath "fact pictures," previously reported by Doctor Swartzman. Authors and publishers may profit immeasurably through improved methods of illustrations, because of the natural interest aroused in students as well as in teachers. Again, authors and publishers should adopt the standard of including in the textual material if not in the appendix, organized lists of visual and other aids specifically suited for use in connection with the subject matter involved. While this is not a simple task, it represents an invaluable teaching service.

The scarcity of teaching courses in the use of visual and other aids, except in Pennsylvania, constitutes one of the most significant needs for the improvement of classroom work. This condition of affairs over the country as a whole, with notable local exceptions, has led directly to many diffcult problems in classroom usage as well as in efficient administration of visual and other related programs. It is unreasonable to hope that there will be an adequate understanding or an efficient use of visual and sensory aids, until Colleges of Education regularly train the prospective teachers in the fundamentals of such work. These courses should be of the laboratory rather than of the survey type. The problem of handling apparatus may serve as an example for consideration in such a course. The importance of this idea is illustrated through the fact that one may no more be expected to handle the various types of projectors efficiently with the basic information that is given in the average instruction book, than one may be expected to drive a new automobile through crowded city traffic on the basis of reading an instruction book.

In teacher training institutions, one of the most significant ideas involving visual aids is that of directing the observation lesson as outlined by Doctor Clark at State Teachers College in Winona, Minnesota. Doctor Clark personally directs observation of the practice teacher groups while the lesson is in progress and without disturbing the regular students. We can not hope to develop the ablest type of teacher in the time at our disposal, unless the training schools, as architectural units,

(*Concluded on page* 161)

Alfred W. Abrams

1866-1938

AGAIN we must chronicle the passing of an outstanding figure in this field, Alfred W. Abrams, whose notable service of 44 years in New York State education was terminated by his retirement on December 1st, 1934 at the age of 68. Thereafter he divided his leisure time between Florida and New York, but his interest in the visual field never flagged. We had letters from him from Florida. When in Albany, he frequently visited his old Department, now under Ward C. Bowen. His last visit was 12 hours before his death, which occurred in his Albany home on April 2nd, 1938.

Alfred W. Abrams was born in Cobleskill, N. Y., in 1866. He prepared at Cazenovia Seminary and graduated from Cornell University in 1891. His wide teaching experience in New York State began in rural schools. After graduation there followed a four-years High School Principalship at Liberty; another of four years at Oneonta High School; seven years as Superintendent of Schools at Ilion; and in 1906 came appointment to the State Education Department as Inspector of Schools. This long and intimate contact with the actualities of the classroom was an ideal background for his interest and influence in visual instruction. He knew whereof he spoke when he began promotion and scientific application of visual aids to classroom procedure upon appointment as Director of the Visual Instruction Division of the University of the State of New York in 1909.

Dr. Abrams was a staunch advocate of the lantern slide picture. "The mere showing of pictures has little positive educational value," he said. "One of the teacher's most important functions is training pupils to observe and interpret." Logically, then, he stressed the use of very few slides in a class period, holding each long enough for adequate observation, reaction and discussion by the class, permitting recall of previous knowledge, recognition of new facts and relationships through measurement, comparison, judgment and conclusion. He developed a state-wide plan of registering classes adequately equipped for systematic slide-teaching and therefore qualified to receive slide service.

In addition to his masterful development of the Department through 25 years, he found time to teach summer courses in Visual Instruction at Cornell University (3 summers), at Clark University, and at Massachusetts Teachers College at North Adams, Mass. His writings include a "Geography of New York State," a "World Geography" as co-author, the Visual Instruction article in the Encyclopedia Americana and numerous articles in various educational journals. At his death he had nearly completed manuscript for "Picture Expression" It should be possible to publish this final book by an acknowledged leader in visual instruction, written out of his ripe scholarship, his keen thinking and his rich experience.

N.L.G.

Visual Aids in Teaching Certain Elements of Critical Thinking

By LOUIS M. HEIL
Ohio State University, Columbus

How pupils can be trained in, and tested for accurate interpretation of pictorial statistical data.

ALMOST everyone would probably agree that a trend exists at the present time in the increasing number of magazines and other publications which may be classified as pictorial. Increasingly this type of publication is being used as a means of presenting information of almost every kind to the public. Even in magazines which would not be described as pictorial, it is easy to recognize a greater use of pictorial and graphic devices as a means of presenting information. The activities of the C.C.C., the W.P.A., and other government agencies have been represented in pictorial form; trends in disease and accidents are represented through charts and graphs; advertisers use pictorial techniques in their attempts to influence the consumer.

Readers or consumers of such materials make many different kinds of interpretations on the basis of the evidence presented to them. Some of these interpretations are justified but many are not. More often than not, interpretations are made which are incomplete in that interpretations involve only a small part of the data. Very often critical points are missed. Too often, also, interpretations are not qualified when the interpretation deviates from the data to any extent. For example, it is quite common for people to infer that one thing is the cause of another simply because it is related to it; milk has been inferred to be the cause of cancer because a correlation exists between the consumption of milk and the prevalence of cancer in certain parts of the world. Over-generalization is another common error of interpretation; for example, the evidence presented in a graph may show that the number of automobiles sold in Illinois is increasing; one cannot infer from that information that the sale of automobiles in the entire country is increasing.

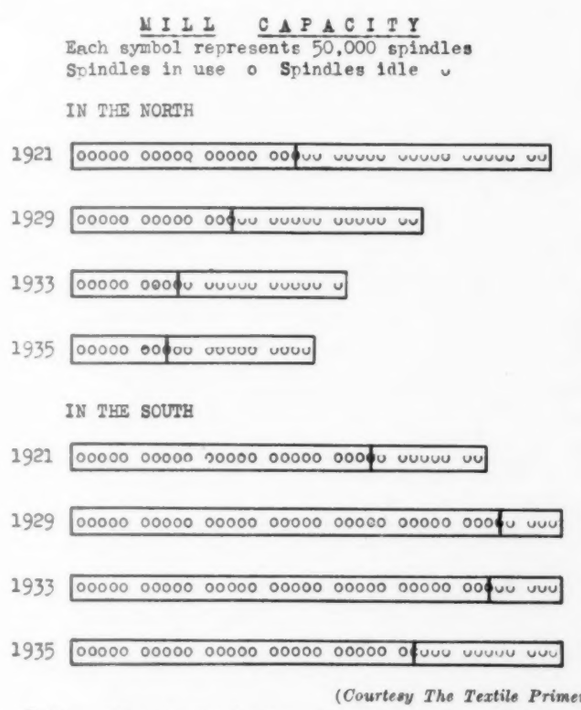
One need in our schools, therefore, would seem to be that of training children in making accurate interpretations of evidence which may confront them. And since more and more information is being presented to children, as well as to adults, in various pictorial forms, it seems to follow that children should receive instruction which would better prepare them to make accurate interpretations of evidence presented in pictorial form.

One method of instruction, which may develop the abilities involved in making accurate interpretations of pictorial materials, would be to have pupils work at problems in which it would be necessary to interpret pictorial data. *Building America, Life, Hygeia* and other publications contain an abundance of data which would bear on a number of different problems on which pupils may work.

Very often it is desirable to have an entire class discuss the same aspect of a problem. At this time there may exist some difficulty in getting the data or evidence, which bears on the problem, before the entire group. One way of solving this problem is the use of lantern slides or film slides. These teaching aids are of especial value at this point when the evidence is of the kind which cannot be reproduced satisfactorily with the ordinary methods of duplication. The accompanying figure represents an example of data which probably could be better presented to a class by means of a lantern or film slide than through duplication.

How can such materials be used to develop more critical thinking by pupils? Let us assume that in class discussion of social studies the data represented by the illustration is shown to the class by means of a lantern slide. The teacher may ask several questions regarding the data thus presented. These questions may be:

1. Make several interpretations which you believe are entirely justified by the data presented.
2. Are there factors in the data which you believe represent the cause of the reduction of cotton thread production in the North?
3. How would you express an interpretation which would predict the cotton produced in the North at some future time—say, 1940?
4. Make an interpretation which would express as accurately as possible the effects of the decreased cotton production in the north. Which factors in the data support this interpretation?
5. What kind of prediction would you make concerning the production of cotton thread in the southwestern part of the United States? Which factors in the data support this interpretation?



(Courtesy The Textile Primer)

Cotton Thread Production in Terms of Spindles

These questions have been selected to direct discussion at certain points where the pupil is likely to make erroneous interpretations. A discussion of Question 2 should indicate that there is really nothing in the evidence which would enable one to assign any *cause* for the decline of cotton thread production in the North. Question 3 should bring out the necessity for the qualification of a prediction; that is, even though the interpretation is in agreement with a trend in the evidence presented, it is necessary to qualify such an interpretation as "probably true." Discussion of Question 4 will probably demonstrate that there is nothing in the evidence which would enable one to make any interpretation concerning the possible effects produced by the decreased thread production in the North.

Question 5 should demonstrate the error of over-generalization —that it is fallacious to go beyond the evidence to predict what would happen in the southwestern part of the country on the basis of evidence concerning the southeastern part of the country.

Other principles or cautions which should be applied when making interpretations from data or evidence are:

1. Interpretations which reason by analogy in saying that things, processes, conditions, etc., which are alike in some respects must be alike in others must be qualified by indicating that the interpretation at most is nothing more than a reasonable hypothesis. Rayon production just as cotton production has . . .

2. Interpretations which refer to specific points within the data but which are not actually described by the data should be qualified—the qualification depending upon the regularity or trend suggested by the data. In 1933 the cotton thread production was . . .

3. Interpretations, either qualified or unqualified, which involve personal judgments or bias about factors or conditions within the data cannot be justified by the data alone. An example might be: "It is unfortunate that the cotton thread production in the north is falling off."

4. Terms and words which are not synonymous with those of the data should not be used in making interpretations.

5. Interpretations, either qualified or unqualified, in which the assumption is made that everything works in accord with a purposeful or pre-determined plan cannot be justified. It is impossible for the people of the United States to do anything about the downward trend of cotton thread production in the northern part of the country.

6. Qualifications must accompany those interpretations which indicate that a factor which is true of the entire data with respect to time or place, is true of a particular time or place within the data. The cotton thread production in Connecticut during the period 1921 to 1935 decreased approximately fifty percent.

Questions, similar to the five already given, could be devised to direct attention of pupils to a consideration of what is involved in the six additional principles of interpretation.

Some evidence has been presented which indicates the need for developing the ability to make accurate interpretations. Likewise, a suggestion has been made concerning an approach which may be used when a class is dealing with pictorial evidence or data. The question which follows rather naturally at this point is: How is it possible to attain evidence of a pupil's achievement in making accurate interpretations when he is dealing with various kinds of evidence or data? In a test which may be devised to obtain such evidence, a pupil should be given an opportunity to commit the most common errors which are found when the pupil is asked to make his own interpretations from data. This means that an opportunity should be given to him to go beyond the data in various ways. One such test situation is given below:

TEST ITEM A

Statements To Be Judged On The Basis Of The Evidence Presented in the Figure

1. The ratio of the used to non-used spindles in northern mills in 1935 was about one-half of the ratio of utilized mill capacity in 1921.

2. Southern cotton manufacture was greatly reduced by the depression of 1930-1933.

3. In 1929 about half of the cotton spindles in northern mills and about one-seventh in southern mills stood idle.

4. The reduction in the production of cotton cloth was accompanied by still greater reduction of workers employed.

5. The number of active spindles in northern mills showed a consistent downward trend which was not true in southern mills.

6. The use of substitutes for cotton in stockings and dresses has resulted in a reduction in the amount of cotton cloth.

7. Many persons employed in northern mills before 1921 were forced to find other employment after that time.

8. During the period of 1921 to 1935 there was a shift in the location of cotton mills from the North to the South.

9. In 1931 there were fewer spindles in use in eastern United States than in 1929.

10. The total number of active spindles in eastern United States increased from 1921 to 1935.

11. In northern cotton mills a greater portion of available spindles is in use today than in the southern mills.

12. Less cotton was grown in the United States in 1935 than in 1921.

13. More cotton cloth is being made now in the southern mills than was made in 1929.

In the test item, the pupil is asked to judge the statements. Specifically, he is directed to make a decision concerning every statement in one of the five ways: (1) the evidence itself is sufficient to make the statement true; (2) the evidence suggests that the statement is probably true; (3) the evidence is insufficient to make a decision concerning the statement; (4) the evidence suggests that the statement is probably false; (5) the evidence itself is sufficient to make the statement false. Such a test item should include statements which require the application of those principles of interpretation which have been stated before.

After a pupil has taken a test in which he has judged interpretations made on the basis of several different kinds of data, it is possible to infer several of his more outstanding tendencies on the basis of his achievement. For example, if the pupil consistently judges probably true and probably false statements as being true or false respectively, or if he judges insufficient data statements in any way other than "insufficient data" in a large number of cases, it is possible to say that he has a tendency to go beyond the facts in judging interpretations made on the basis of certain evidence. If the pupil judges true or probably true statements as false or probably false and vice versa, one may say that he has a tendency to make crude errors in judgment; that he seems to be so confused in a problem that his judgments of statements are really opposite to that which the data suggest. In a few cases, it is found that pupils are over-cautious; that is, they do not take as full advantage of the data as they might. For example, a few pupils will judge true or false statements as only probably true or false respectively or they will judge probably true and probably false statements as statements in which there is insufficient data for making a decision. Also from the test, by observing the number of statements which should be marked as "insufficient data" which the pupil has judged to be true or probably true and the number of probably true statements which the pupil has judged as true, it is possible to infer whether he has a tendency to judge statements as having a greater tendency of truth than the data justify or—to express it in another way—whether he has a tendency to say "yes" to statements which should be qualified or seriously doubted. By observing the number of "insufficient data" statements which the pupil has judged to be false or probably false, and the number of probably false statements which a pupil has judged to be false, it is possible to infer the tendency to judge statements as having a greater certainty of being false than the data justify.

These descriptions of pupil's tendencies may serve a variety of purposes. For example, by means of this evidence it would be possible to detect those individual difficulties which a pupil seems to have in making accurate interpretations of data. The teacher could proceed with this information in various ways which may be helpful in overcoming the undesirable tendencies as revealed by the test. The tendencies revealed by the test also serve as valuable evidence when making reports to parents or prospective employers.

DEPARTMENT OF VISUAL INSTRUCTION

President's Letter

AT the New York meeting of the Progressive Education Association recently, I got a great deal of pleasure when Professor Leonard Doob put the point-blank question to arch-propagandist Edward Bernays, "Tell this crowd of teachers who your present clients are." Bernays did not tell us, but the audience reflected the distaste that millions of people in this country are feeling at being "used." They resent the fact that they can't pick up a newspaper and read about an event, as for instance, the Amelia Earhart flight from Hawaii to the United States (financed by a sugar refining organization), without wondering, "Now who started this?"

This train of thought was suggested by a questionnaire which I received the other day, apparently from some market survey group. They didn't want to know very much, merely this: *What cities and colleges have departments of visual instruction?* When you have answered this very simple question, you could take a minute or two for the second one, namely, *How far has the standardization of instructional subjects developed in film production?* There were several other questions.

Now I am not one of those persons who think that all questionnaires are an abomination, but why should an educator answer a questionnaire of this type? No final report or summary of the findings is offered. No check in payment for professional advice flutters out of the letter containing the questionnaire. Yet we may be perfectly sure that the firm making the market analysis will get a big fat fee for relaying such professional advice on to their client. Furthermore, as with the propaganda of Edward Bernays, we didn't know who the initial client is.

Nor is this merely a personal problem. Commercial groups attempt to use the Department of Visual Instruction of the N. E. A. for their own ends. We have requests to place this or that speaker on our program —speakers with commercial axes to grind. No clear-cut or arbitrary rule can be laid down in cases such as this, but it is true that a decrease in commercial emphasis at our programs meets with the favor of our members. Further, attempts to get financing through commercial companies, for carrying forward the work of the department, are met with a good deal of unfavorable criticism. Obviously, we cannot be a professional group in high standing unless this commercial emphasis is subordinated or, better still, eliminated entirely from our work.

I get a second kind of request in the mails, and I hope that some genius can devise a good simple answer for the not infrequent question (usually on a postal card), "Will you kindly send me information about visual education?" And what would you do with a request like this: "I am going to teach a course in visual aids this summer. Please send me a copy of your materials." Or, "Will you kindly send me a list of films that we can use at a Woman's Club meeting on June 22?" Then add to this scores of specific, clear-cut questions which seek answers which our society ought to be able to give.

This suggests an extension of our function as a clearing house of information. We must remember, however, that a clearing house is a function and not a location. The *Education Index,* found now in any good educational library, clears data on all educational articles. The *Educational Screen* clears information on visual instruction. The American Council on Education, through its film project, clears certain data on films, teacher-training and the like. A book such as *Motion Pictures in Education,* published by the H. W. Wilson Company, clears digest information on articles, books, and pamphlets in this field. The excellent bibliographies at the end of each chapter in these books are another example of a clearing function.

The puzzled newcomer does not know these things. He may not have access to a good library. He can be helped by a central clearing house. Some of the information may be in inaccessible journals, foreign and otherwise. Someone must dig it out and pass it on. This, too, might well be a function of our society.

Mr. Wilber Emmert, of Indiana (Pennsylvania) State Teachers College, has just been appointed chairman of a committee on clearing-house functions. If you have any proposals that you would like to pass on to him, he will be glad to get them.

Three other committees have been appointed, namely, Editorial, Miss Etta Schneider, Teachers College, Columbia University; Teacher Training, Mr. Paul Reed, Board of Education, Rochester, New York; and Permanent Secretary and Membership, Mr. Abraham Krasker, School of Education, Boston University. These persons, too, will welcome assistance.

The summer meeting will be held in New York City, June 27, 28, and 29. An excellent program is being prepared and will be printed in the next issue of the *Educational Screen.* We hope you can be with us.

—EDGAR DALE

See Roster on Next Page

Membership expiration in April, May or June is shown by (A) (M) or (J) respectively. If such letter follows your name it is time to use the coupon.

Department of Visual Instruction
Box 3046 University Station, Columbus, Ohio
Gentlemen:

I hereby renew my Membership in the Department of Visual Instruction and attach a remittance for $2 to cover dues for 1938, including magazine subscription and other services.

Name: .....

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.....

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Williams, Don G. ..... Mont.
Wilson, E. H. ..... Wis.
Winchell, Lawrence R. ..... N. J.
Wise, H. A. ..... Mo.
Witt, Margaret L. ..... Pa.
Wollangk, Orpha ..... Wis.
Wright, George W. ..... N. J.
Zimpfer, B. G. ..... Ohio

New York Branch

Amson, Emily ..... N. Y.
Barrett, Wilton ..... N. Y.
Bashkowitz, Mrs. P. ..... N. Y.
Berg, Mrs. E. L. ..... N. Y.
Boecker, Alexander ..... N. Y.
Bowmar, Stanley ..... N. Y.
Bray, J. R. ..... N. Y.
Briner, George C. ..... N. Y.
Brodshaug, M. ..... N. Y.
Burns, Suzette ..... N. Y.
Burns, Val Jean ..... N. Y.
Clifford, William ..... N. Y.
Cohen, Dr. Frances ..... N. Y.
Cook, Miss Dorothy ..... N. Y.
Devereux, A. E. ..... N. Y.
Dodd, James W. ..... N. Y.
Doidge, R. W. ..... N. Y. (A)
Dunn, Fannie W. ..... N. Y.
Eaton, Ann ..... N. Y.
Eichel, Charles G. ..... N. Y. (A)
Ellis, Don Carlos ..... N. Y.
Feldstein, M. E. ..... N. Y.
Ferguson, B. W. ..... N. J.
Fortington, Mrs. H. A. ..... N. Y.
Foster, Frances M. ..... N. Y.
Ganz, William J. ..... N. Y.
Gates, G. M. ..... N. Y.
Gray, H. A. ..... N. Y.
Greenwald, Mrs. Alma ..... N. Y.
Gunnell, Frank E. ..... N. Y.
Gutlohn, Walter O., Inc. ..... N. Y.
Healey, Gertrude M. ..... N. Y.
Hessberg, Mrs. Lena ..... N. Y.
Hochheimer, Rita ..... N. Y.
Hoefling, Miss C. E. ..... N. Y.
Jansen, William ..... N. Y.
Knowlton, Dr. D. C. ..... N. Y.
Koch, Lillian M. ..... N. Y.
Kuttman, Dr. W. A. ..... N. Y.
Long, P. C. ..... N. Y.
Mann, Paul B. ..... N. Y.
Margolis, Sol ..... N. Y.
Mathewson, F. T. ..... N. Y. (J)
Mayer, Mrs. Rachel ..... N. Y.
McClusky, F. D. ..... N. Y.
McFadden, Dorothy L. ..... N. Y.
McKeown, M. J. ..... N. Y.
McSwyny, Miss Mary ..... N. Y.
Mendenhall, James E. ..... N. Y.
Nathan, Caroline K. ..... N. Y.
Newman, Helena T. ..... N. Y.
O'Gorman, Mrs. Daniel ..... N. Y.
Olekhovsky, Victor ..... Palestine
Palamountain, Joseph ..... N. Y.
Principal Public School No. 43 ..... N. Y.
Quinn, Eleanor ..... N. Y.
Rabenort, Dr. William ..... N. Y.
Ramsey, Mrs. Grace F. ..... N. Y. (J)
Reilly, Frederick J. ..... N. Y.
Rooney, Miss M. C. ..... N. Y.
Ross, Herman ..... N. Y. (J)
Routzahn, Evart G. ..... N. Y.
Schneider, Etta ..... N. Y.
Silverman, Estelle ..... N. Y.
Simpson, M. L. ..... N. Y.
Sondheim, Miss Mabel ..... N. Y.
Steiner, Frederick ..... N. Y.
Taylor, Florence E. ..... N. Y.
Theobald, Jacob ..... N. Y.
Tomlin, Fred ..... Minn.
Trace, Charles T. ..... N. Y.
Wacktell, Max ..... N. Y.
Williamson, Pauline B. ..... N. Y. (J)
Wilson, H. W. ..... N. Y. (A)
Young, Isabel N. ..... N. Y.
Zisman, S. B. ..... N. Y.

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Austin, Scott ..... Mass.
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Bettencourt, William ..... Mass. (M)
Bickford, Gladys C. ..... Mass.
Chapman, Leland H. ..... Mass.
Christiansen, F. J. ..... Mass.
Cole, Lee ..... Mass.
Condon, Chester H. ..... Mass. (A)
Davis, Dwight S. ..... Mass.
Erickson, Carleton W. ..... Mass.
Finklestein, Rose ..... Conn.
Fisk, Harrison S. ..... Mass.
Flannery, Charles F. ..... Mass.
Krasker, Abraham ..... Mass
Leavitt, Lawrence G. ..... Vt.
Lyons, John H. ..... Conn.
Meyers, Samuel ..... Conn.
Moyer, Jas. ..... Mass. (J)
Reynolds, Edward A. ..... Conn.
Roberts, Thelma B. ..... Mass.
Rummel, Paul ..... Mass. (J)
Sargent, Theodore ..... Mass.
Sawyer, Edmund R. ..... Mass.
Smith, Howard A. ..... Mass.
Temple, Edward H. ..... Mass.
Toomey, Ursula K. ..... Mass.
Walch, Roy H. ..... Conn.

Institutional Memberships

Admin. Library, Pittsburgh ..... Pa.
American Library Assn., Chicago ..... Ill.
Board of Education, Naperville ..... Ill.
Brooklyn Children's Museum ..... N. Y.
Brigham Young Univ. ..... Utah
John Burroughs School Columbus ..... Ohio
Capital University Library ..... Ohio
Claiborne Parish School Board ..... La.
Columbus Y.M.C.A. ..... Ohio
Creative Educational Society ..... Minn.
Elon College Library ..... N. C.
Evanston High School ..... Ill.
General Films, Ltd. ..... Can.
Geo. Peabody College for Teachers Library ..... Tenn.
International Educational Pictures Inc. ..... Mass.
Irving School, Maywood ..... Ill.
Kent College Library ..... Ohio
Manual Arts High School, Los Angeles ..... Cal.
Order Dept., University of Minnesota ..... Minn.
William McGuffey H. S. Miami University ..... Ohio
Nichols Intermediate School, Evanston ..... Ill.
Noble School, Detroit ..... Mich. (J)
Normal Community High School ..... Ill.
Pedagogical Library, Philadelphia ..... Pa.
Public Library, Cleveland ..... Ohio (J)
Roosevelt Jr. High School, Hamilton ..... Ohio
Standard School District, Oildale ..... Cal.
State Normal University, Normal ..... Ill.
State Teachers College Libraries
at Chico ..... Cal.
at Kearney ..... Neb.
at San Diego ..... Cal.
at Terre Haute ..... Ind.
State University, Exten. ..... Ia. (J)
University of Kan., Bur. of Vis. Inst. ..... Kan.
Univ. of Hawaii, Library, Teachers College ..... Hawaii
Visual Edu. Service, Hawaii
Visual Aids Com, Ridgewood Schools ..... N. J.
Visual Edu. Dept., Fresno Schools ..... Cal. (J)
Walsh School, Summit ..... Ill.
West Texas State Teachers Coll. Lib. ..... Tex.
Wilson Teachers College ..... D. C.

Summer Courses in Visual Instruction

Compiled in Co-operation with The Society for Visual Education

(Figures in parentheses show credit hours for course, where such information has been given)

Alabama

University of Alabama, University — June 6-July 15 and July 15-Aug. 13
Photography (3) — G. G. Quarles

Arizona

State Teachers College, Tempe — June 6-Aug. 11
Visual Instruction (2) — Dr. Frederick Ristor

California

Chico State College, Mount Shasta City — June 18-July 29
Photography (2)

College of the Pacific (Stockton), Lake Tahoe — Aug. 8-27
Visual Education — George Eby

San Francisco State College, San Francisco
Photography (2) — June 20-July 8

University of Southern Calif., Los Angeles — June 20-July 29
Audio-Visual Education (2) — Annette Glick Byrne
Methods of Teaching the Use and Appreciation of Educational Films and Radio Programs (2) — Marjorie Dowling Brown

Colorado

Colorado Agricultural College, Ft. Collins — June 18-July 30
Visual Education (1¾) — Lloyd E. Aspinwall
Photography (1¾)

Colorado State College of Education, Greeley — June 17-Aug. 13
Visual Aids in Education (3, 4) — Bales

University of Colorado, Boulder — June 20-July 22 and July 25-Aug .26
Visual Aids (3) — Lelia Trolinger
Education Through Motion Pictures (3) — Lelia Trolinger
Photography (3) — Julian M. Blair

University of Denver, Denver
Vitalizing Instruction through the Use of Visual Aids — E. H. Herrington

Western State College, Gunnison — June 18-Aug .20
Administration and Supervision of Visual Education
Philosophy and Psychology of Visual Education
Methods and Materials of Visual Education (6-8) — Mary Ann Dale

Florida

University of Florida, Gainesville, — July 25-Aug. 26
Audio-Visual Education (2) — William Louis Goette

Georgia

State College for Women, Milledgeville — June 15-July 22
Visual Instruction (1½) — L. F. Sykes

University of Georgia, Athens — June 15-July 22 and July 26-Aug. 26
Visual Aids in Education (2) — T. R. Wright

Illinois

College of St. Francis, Joliet — June 27-Aug. 6
Visual Education — Sister Mary Dolores

University of Illinois, Urbana — June 20-Aug. 13
Visual and Auditory Instructional Aids (2) — L. A. Astell

Western State Teachers College, Macomb — June 13-July 22
Visual Instruction (4) — Alvin B. Roberts

Indiana

Purdue University, Lafayette — July 6-July 27
Visual Aids in Education (3) — Justus Rising
Industrial Photography (3) — E. J. Kohl

Iowa

Iowa State College, Ames
Visual Methods in Industrial Arts Education — June 22-Aug 27 — Prof. Fred J. Schmidt
Elementary Photography—Physics 615 — June 15-July 21
Photography in Scientific Work—Physics 650

State University, Iowa City — June 28-July 28
Demonstration lectures on Visual Aids — L. W. Cochran and members of faculty

Kansas

University of Kansas, Lawrence — June 7-Aug. 3
Visual Education in Elementary and Secondary Schools (2) — Fred S. Montgomery

Kentucky

University of Kentucky, Lexington — June 13-July 16
Visual Teaching (3) — Louis Clifton
Administration of Visual Aids (3) — W. Gayle Starnes

Louisiana

State University, Baton Rouge — June 6-Aug. 4
Visual-Auditory Aids in Teaching (3) — J. E. Hansen

Loyola University, New Orleans
Visual Education — Lucile Bostick

Maine

University of Maine, Orono
Visual Education — Paul S. Miller

Maryland

University of Maryland, College Park — June 27-Aug. 5
Visual Education (2) — Dr. H. H. Brechbill

Massachusetts

Boston College School of Education, Chestnut Hill — July 1
New Sensory Aids in Teaching — J. A. Hennessey

Boston University, Boston — July 5-Aug. 13
Visual Education in Nature Study (2) — Earle A. Brooks
Motion Pictures in Education (2) — Howard M. LeSourd

State Teachers College, Fitchburg — July 5-Aug. 12
Visual Education Management (2) — Carleton W. Erickson
Visual Aids in Education (2) — Carleton W. Erickson

Michigan

Michigan State College, East Lansing — June 20-July 29
Visualizing Instruction (3) — Dr. E. L. Austin

Western State Teachers College, Kalamazoo — June 27-Aug. 5
Audio-Visual Education (4) — Ray C. Pellett
Photography — John R. Fox

Minnesota

State Teachers College, Moorhead — June 13-July 22
Visual Aids in Teaching (1) — C. P. Archer

State Teachers College, St. Cloud — June 13-July 22 and July 23-Aug. 27
Visual Education (4) — Roland Torgerson

University of Minnesota, Minneapolis — June 13-July 22 and July 25-Aug. 26
Visual Aids in Teaching (3) — Ella C. Clark

Missouri

University of Missouri, Columbia — June 13-Aug. 5
Problems in Visual Education (2) — W. C. Bicknell

Washington University, St. Louis — June 17-July 29
Visual Education (3) — Alma B. Rogers

Nebraska

Visual Instruction (2) — June 6-July 15 and July 18-Aug 20

New Jersey

State Teachers College, Glassboro — June 27-Aug. 5
Visual Education in Primary Grades;
Visual Education in Upper Grades and Junior High — George Wright

State Teachers College, Trenton, — June 28-Aug. 6
Photography

New Mexico

Normal University, Las Vegas — One week course June 13
Visual Education — Anna Dale

State Teachers College, Silver City — June 6-July 29
Photography (3)

New York

Alfred University, Alfred — July 5-Aug. 12
Visual Education — H. O. Burdick

Columbia University, New York — July 6-Aug. 13
Audio-Visual Aids to Instruction (2) — Dr. M. R. Brunstetter, Prof. Fannie W. Dunn, Dr. V. C. Arnspiger
Research in Visual and Auditory Education (2-4) — Dr. V. C. Arnspiger
Laboratory Course in Audio-Visual Instruction (1) — Etta Schneider

New York University, New York
Laboratory Course in Visual Aids — July 6-July 24
Practical Application of Visual Aids — July 27-Aug. 12 — John H. Shaver

State Normal School, Potsdam — July 5-Aug. 12
Selection and Use of Visual Aids (2) — Everett L. Priest

Syracuse University, Syracuse — July 5-Aug. 13
Visual Education (3) — Melvin Brodshaug

North Carolina

Normal and Teachers College, Asheville — June 6-July 16
Visual Aids
Motion Picture Appreciation — Hazel L. Gibbony

Ohio

State University, Bowling Green — June 13-Aug. 5
Audio-Visual Education in Elementary Education (3)
Audio-Visual Education in Secondary Education (3)
Administration of Audio-Visual Aids in Education (3) — L. L. Ramseyer

Capital University, Columbus — June 13-July 23
Introduction to Techniques of Visual Education (2) — B. G. Zimpfer

Kent State University, Kent — June 20-Aug. 12
Radio and Visual Aids in Education (2) — Dr. A. L. Heer
Photography (3) — J. T. Johnson

Miami University, Oxford — June 20-July 29
Use of Visual Aids in Instruction (1) — B. A. Aughinbaugh
Recording Experiences (1) — D. H. Harris

Ohio State University, Columbus — June 21-July 27
Visual Aids — Edgar Dale

Ohio University, Athens — June 13-Aug. 5
Visual Instruction (2)

Western Reserve University, Cleveland — June 20-July 29
Visual Education Materials and Methods in Science (3) — Ellis Persing
Visual Instruction (3) — W. M. Gregory
Photography (3)

Oklahoma

Okla. Agri. and Mechanical College, Stillwater — May 28-July 30
Visual Instruction; Photography

University of Oklahoma, Norman — June 7-July 31 and Aug. 2-Aug. 27
Visual Aids in Education (2) — Robt. Boyd Gunning

Oregon

Oregon State College, Corvallis — June 20-July 29
Organization and Supervision of Visual Instruction (3) — George Eby
Construction and Use of Visual Aids (3) — Eby-Welch
Written, Pictorial, and Graphic Teaching Aids (3) — Mr. Welch

University of Oregon, Eugene — June 20-July 29
Photography (3)

Pennsylvania

Juniata College, Huntingdon — June 15-Aug. 12
Visual-Audio Aids (3) — Paul Rummel

Muhlenberg College, Allentown — July 5-Aug. 12
Visual Instruction (2-4) — Harold E. Miller
Photography (4) — John V. Shankweiler

State Teachers College, Bloomsburg — June 20-Aug. 21
Visual Instruction (1)

State Teachers College, Edinboro — June 20-July 30
Visual Instruction (2)

State Teachers College, Indiana — W. E. Emmert

State Teachers College, Lock Haven — June 20-July 30
Visual Education (1) — J.Ulmer Levi

State Teachers College, Mansfield — June 27-Aug. 6
Visual Education (2)

State Teachers College, Shippensburg — June 20-Aug. 1
Visual Education (1) — Leslie C. Krebs

University of Pennsylvania, Philadelphia — June 27-Aug 9
Visual and Sensory Techniques (2) — John Minnick

University of Pittsburgh, Pittsburgh — July 6-Aug. 12
Visual Education (2) — Mr. Olander
The Materials of Instruction (2) — Mr. McMurry

Villanova College, Villanova — June 27-Aug. 6
Visual Education (4) — Harold F. Thompson

Washington and Jefferson College, Washington — June 13-Aug. 6
Visual Education (3) — James B. Anderson

Waynesburg College, Waynesburg — June 20-Aug. 19
Visual Education and Sensory Techniques (3) — Cecil O. Riggs

South Carolina

University of South Carolina, Columbia
Audio-Visual Education — Leon McCormack

South Dakota

State Normal College, Spearfish — June 6-July 16
Visual Education — H. A. Henderson

Tennessee

Agricultural & Industrial State College, Nashville
Photography (3) — Vernon Winslow

University of Tennessee, Knoxville — July 21-Aug. 26
Audio-Visual Aids to Education (3) — S. E. T. Lund and H. H. Walker

George Peabody College for Teachers, Nashville
Visual Instruction (emphasis on application to physical education) — R. J. Andrews and Harry Kuklin

Texas

Abilene Christian College, Abilene — June 7-July 16
Audio-Visual Instruction (3) — G. C. Morlan

Texas Technological College, Lubbock — July 19-Aug. 25
Visual Aids in Education (3) — W. B. Irvin

University of Texas, Austin June 7-July 18 and July 18-Aug. 29
Use of Visual Aids in Education (3) — B. F. Holland
Photography (2)

West Texas State Teachers College, Canyon — June 6-July 15
Audio-Visual Aids — E. E. Sechriest

North Texas State Teachers College, Denton — June 6-July 16 and July 18-Aug. 25
Photography (3) — L. L. Miller

Washington

Central Washington College of Education, Ellensburg — June 15-Aug. 16
Visual Education (3) — Loren D. Sparks

University of Washington, Seattle — June 20-July 20 and July 21-Aug. 19
Production of Radio Programs, Electrical Transcription, and Pictures for Educational Purposes (2½)
Radio, Recordings, Slides, and Motion Pictures in Schools (2½) — Philip A. Jacobsen

West Virginia

West Virginia University, Morgantown
Visual and Audio-Visual Instruction (3) — H. B. Allen

State Teachers College, West Liberty
Visual Education — H. B. Allen

Wisconsin

Central State Teachers College, Stevens Point — June 20-July 29
Audio-Visual Education — Prof. Jayne

State Teachers College, Milwaukee — June 27-Aug 13
Photography (1) — Manfred Olson

State Teachers College, Platteville — June 13-July 22
Visual Instruction (2)

University of Wisconsin, Madison — June 27-Aug. 5
Visual Instruction (2) — Freeman H. Brown

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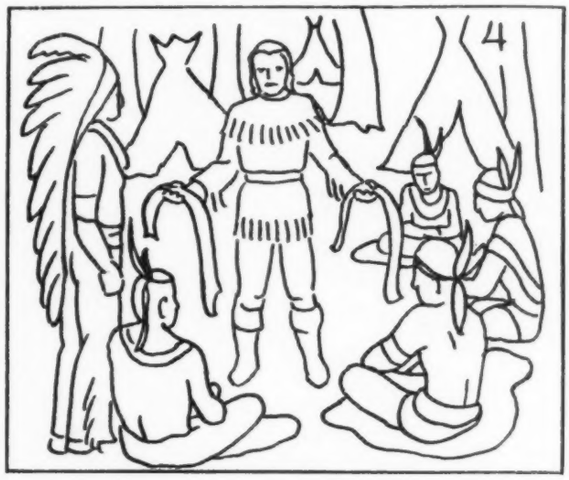
Clark and The Northwest Territory--In Hand-Made Lantern Slides

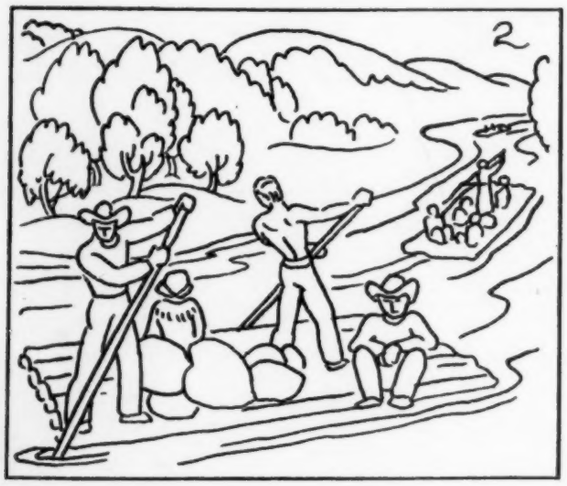
By ANN GALE

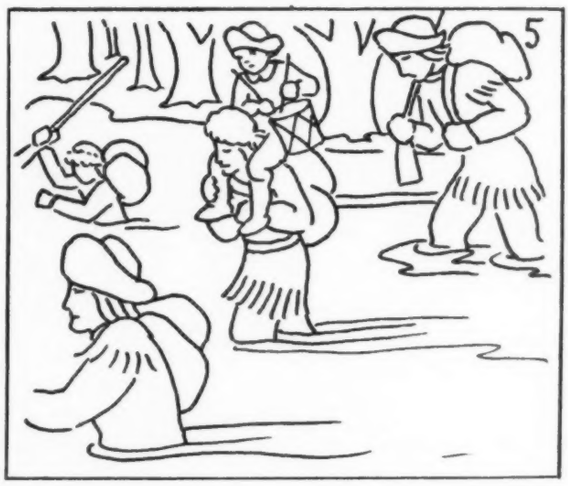
Art Department, Lindblom High School, Chicago

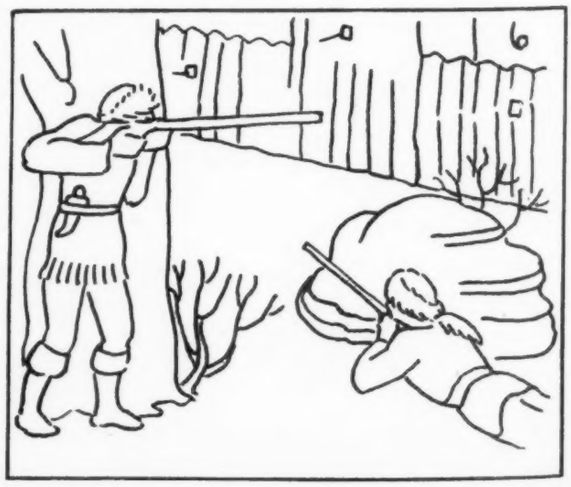
THESE six slides tell the story of George Rogers Clark's conquest of the Northwest Territory, a phase of American history, interesting to seventh and eighth grade students.

1. October, 1777, George Rogers Clark sets out for Williamsburg, a journey of 622 miles, to ask help for his ambitious plan to conquer the Old Northwest.
2. In June 1778, Clark and his men go down the Ohio on their way to Kaskaskia.
3. July, 1778, Clark and his men captured Kaskaskia while the soldiers there were enjoying a grand ball.
4. Clark offering the Indians who were incited by the British to raid settlements, the red belt of war or the white belt of peace.
5. Clark and his men crossing swollen rivers in February, 1779, on their way to Vincennes to surprise Hamilton, the British commander, who had taken the fort.
6. Clark and his men with deadly accurate marksmanship silencing the British guns at Vincennes and eventually capturing the fort.









The simplest type of hand-made slide is made by drawing or tracing on finely finished etched glass with ordinary medium lead pencil. Color, by special crayons or inks, enhances the slides greatly. Fine effects are obtained by blending with crayons. About one - third inch margin should be left all around the slide. The slide is readily cleaned with soap or washing powder to receive a new picture.

Visual Aids in Chemical Education

(*Concluded from page 152*)

and as institutions recognizing the importance of method as an aid to imparting knowledge, reflect the best thinking of our time. It is of more than passing interest to note that visual and other aids may be used to teach teachers as well as to teach students.

State and other committee or organization work specifically concerned with visual and other aids is another significant need in many geographical areas. Possible functions of such committees or organizations include:

(1) Maintaining relations with the Committee on Motion Pictures in Education, under guidance of the American Council of Education.

(2) Making approvals on the basis of special standards for the various types of visual and other aids in some such manner as is used by the American Medical Society and other organizations for commodities in general.

(3) Lending encouragement for the production of specific needs in visual and other aids. Films, for example, need to be produced in various subject matter fields where the information is difficult to present without such an aid. This material, obviously, should be produced for use in a restricted number of grade levels. Production of fractional reels to be supported by slides or film-slides is another desirable step.

(4) The development and publication of details whereby the classroom teacher may produce visual aids of genuine teaching value.

(5) Encouragement for the authorship of feature articles and lesson plans to support approved films and other visual aids for which there are no teacher's manuals. A project on copper by the writer, which appeared in the EDUCATIONAL SCREEN some time ago, illustrates some of the possibilities of such correlation.

(6) Encouragement of the use of visual aids on the basis of inherent values where textual material and the literature appears weak. Newly developed fields as well as enrichment materials represent sources for such development.

(7) Selection and publication of articles involving architectural designs for classrooms, lecture rooms, and laboratories. Emphasis, here, should be made on the facility with which the various types of equipment might be used.

Finally, experimental studies specifically related to such fields as chemistry, in relation to such aids as films and slides, have been fragmentary in nature. Frequently, in the past, these studies entailing much time and effort were not conceived as ioint efforts of the subject matter departments together with the psychology and education departments. It appears that too few studies have been made which involve various types of still pictures, and that there is a definite need for studies in the direction of visual and other aids suited to the needs of the changing conception of curriculum content.

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NEWS AND NOTES *Being brief notations on significant doings and events in the visual field.*

Conducted by Josephine Hoffman

Harvard Develops Films to Improve Reading

To train adults and children for efficient, high-speed reading, as well as to correct slow or faulty reading habits, Harvard psychologists have developed a motion picture which will "steer" the eye in the movements of natural, rapid reading. The Harvard laboratories are the first to apply motion pictures to this training, and preliminary tests indicate that the new films should prove to be the most effective and least expensive device yet available for this work. The films can be used by any individual or institution possessing a 16 millimeter projector.

The inventors are Professor Walter F. Dearborn, Director of the Harvard Psycho-Educational Clinic; Dr. Irving H. Anderson, Instructor in Education; and James R. Brewster, Director of the Harvard Film Service.

Through photographs of the lightning-like movements of the eyes in reading, scientists have found that in scanning a line of type, the human eye does not move steadily, but makes several stops. Between a slow and a fast reader, it has been found, the main difference lies in the number of stops made per line. Through these new movies, the eyes of a slow reader are forced to follow the movements that a more skillful reader's eyes would make under the same circumstances. Thus, the habits of able readers can be duplicated with great accuracy and flexibility. An outstanding feature of the motion picture technique lies in projecting the main body of the text so that it is barely apparent, while significant groups of words are flashed into sharp visibility. This represents a very close duplication of actual experience in reading. Likewise the motion pictures can be graded in speed and difficulty to the abilities and needs of students at all levels from the grade schools through to college and beyond.

The new Harvard film technique is believed to be superior to the older methods of teaching speed in reading, over eye movements under conditions very close to those of actual reading.

A County Visual Service

To meet the need for reference material and teaching aids in the schools of Mendocino County, California, where many of the smaller schools are isolated and the children could not enjoy many of the varied experiences a modern program demands, a circulating library of visual aids was established which is helping to solve the county's curricular problems. Through the cooperation of the county superintendent of schools, six sound-on-film motion picture projectors were placed in as many centers in the county, a county library of 30 films formed, and arrangements made to secure other films from visual education centers. A portable electric generator permits projection in schools not supplied with electricity. Fifty strip-films can also be supplied from the county office. Further, a unit library was established from which books, pamphlets and mounted pictures are available to every elementary teacher.

Educators' Organization Pleads for Better Films

Because of the immense influence of the motion picture, radio and the press, a group of outstanding educators have organized The Institute for Propaganda Analysis to "help the intelligent citizen detect and analyze propaganda." The motion picture is the first media to be examined and "revealed for what it is." The educators charge that the Hollywood producers provide few films which give a realistic picture of life, contenting themselves with stereotyped stories which play a significant part in propaganda, frequently producing grossly inaccurate portraits of races, nationalities and customs. A few films of true social significance have been produced, the success of which should prove that public taste is capable of appreciating films of greater social value.

The Institute believes that the movies should enlighten as well as entertain and, therefore, demands that the motion picture industry recognize this obligation. Further information on the work and theories of this group may be obtained through their monthly letter ($2.00 a year). The headquarters address is 132 Morningside Drive, New York City.

Visual Education Institute in New Jersey

The Central New Jersey Visual Education Institute is holding its first annual meeting in Highland Park on May 19th, in conjunction with the Third Annual Visual Education Institute of Middlesex County. The afternoon session will be devoted to demonstrations on the use of visual aids, and the evening meeting to visual education clinics on all elementary and high school subjects.

Arthur M. Judd, Supervising Principal, New Brunswick, is chairman of the meeting, which is sponsored by the New Jersey Visual Education Association.

Some Visual Aids Statistics

A survey recently completed by the University of California shows that visual aids are used in 8,806 school systems in the 48 states to supplement text book education. New York ranks first in audio-visual education, with a school population of 1,885,207 and 1,298 projection machines in the schools. Pennsylvania is second with a school population of 1,498,606 and 958 school projectors. California comes third with a school population of 1,551,510 and 849 motion picture projectors in the schools.—(*The Motion Picture and Family.*)

DeVry Visual Conference Program

Many prominent educators will participate in the program of the DeVry Conference on Visual Education and Film Exhibition, to be held at the Francis Parker School in Chicago, from June 20 to 23 inclusive.

Mr. William E. Morse, Jr. of Idaho will talk on the organization and working details of a cooperative county film service. Mr. H. E. Ryder, County Superintendent of Schools, of Freemont, Ohio, will give his views on practical aspects of school distribution and cooperative methods. Miss Amelia Meissner, Curator of the St. Louis Museum, is to give an interesting and informative talk on use of special films in history and other subjects. Mr. L. W. Cochrane of the University of Iowa will speak on specialized use of films for college class-work and will exhibit an excellent color production which he has made.

Dr. James E. Bliss, who has contributed valuable information in the field of actual educational productions and organized the cinema library for the Western Reserve University of Cleveland, Ohio, will talk on technical film problems as applied to educational film production. Along similar lines will be the address of Mr. A. P. Heflin of Lane Tech, who has organized the Movie Camera Club. He will exhibit a film which presents short student interviews of graduates, and another on school foundry work. The Lane Tech High School will also send Miss Eleanor Mossman to demonstrate the use of motion pictures for training in English classrooms. Mr. William L. Zeller, prominent Peoria lecturer, will show his bird films in color, and discuss their utilization in lower grades.

Visual educationists from important government offices will participate. Mr. George T. Van der Hoff of the FHA administration will exhibit a housing film and present the government's part in modern film education. Mr. J. A. Mercey, Assistant Director of Information of the National Farm Security Board, will speak on documentary films and their importance in educational work. He will screen "The River" and touch upon the unusual production aspects of this film. Data on film distribution methods and educational adaptation, will be presented by Miss Effie Bathhurst of the U. S. Office of Education.

Miss Katherine Troy, of the Chicago Parks District, will talk on recreational films and present an unusual marionnette film. The National Council of Teachers of English will send the chairman of its Committee on Standards, Miss Helen Rand Miller, author of "Film and School." Her discussion will be titled "Reading Books and Seeing Motion Pictures."

Mr. Jack Gallagher, a Hollywood producer of note, will tell the conference what Hollywood is doing for educators in the way of creating new pictures with real educational value.

Honoring Mr. Herman A. DeVry on the twenty-fifth anniversary of the DeVry Corporation, the Conference will give a testimonial banquet on the evening of June 22nd, in the Sherman Hotel, Louis XVI room. Prominent speakers and guests will be present and a brilliant floor show is being arranged for the commemorative affair.

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The Elementary School Museum

By GEORGE W. WRIGHT
Supervising Principal, Glassboro, N. J.

THE school museum is a visual-sensory aid in the educational program of the typical elementary school.

How shall it best be begun? By beginning. The wise teacher may bring to class a few specimens or exhibits relating to the topic being studied. As a result of the enthusiasm created by children examining this material, asking questions concerning it, looking up reference material, making other research and investigation, and class discussions, the teacher will suggest that perhaps the children might have interesting material at home that would supplement studies if brought to class. The avenue is now open. The little lad, whose parents came from Italy, will bring in pictures, postcards, handkerchiefs, lace, and other interesting objects. In the study of Italy his exhibits and his explanations will be valuable contributions. He becomes a more important member of the school social group. The same situation is true in treating other countries and cultures.

When travel is mentioned, children's travel experiences and their collections will aid to advantage. When food sources and supply are studied, the grocer's girl, the baker's boy, the druggist's daughter, will carry samples from shop to schoolroom. Perhaps the pleased parent, if invited, will take time to come to the class and talk about the materials and their educational implications.

When a collection of some of these products is made, the teacher in the typical elementary school will arrange to have a small label bearing the donor's name attached to the gift or loan. This acts as an acknowledgement to the donor and serves as a stimulus for further contributions. Attics, cellars, cupboards, and closets at home will be carefully searched by children, merchants will be visited, and industries explored for materials of instruction for the classroom. Your museum is now begun. Let the teacher who doubts the success of this method but try and observe the rapidity with which the classroom is filled with objects, specimens, models and pictorial material. Care must be exercised, however, to utilize only those materials that may be of educational value in the classroom.

How shall these exhibits be preserved? There must be a particular place to keep them. One possibility is the individual classroom museum. Another is a school museum. Since the ensuing educational step, from school or classroom museum to books with explanations concerning this material, is but a direct and natural one, it is advisable to correlate the school museum and library.

The museum material should be carefully catalogued. Children will welcome this experience. Habitats may be made, and material mounted to portray a life-like setting. All school departments may closely correlate and contribute to the museum development. If a school library-museum is inaugurated, an administrative schedule for loaning and returning may be employed. This makes for ease of operation.

Building the museum upon materials, merchants, parents and friends supply in the community, naturally limits the objects, specimens and models to the experiences of the community members. Other articles could be integrated with the program. Where may one obtain additional needed materials? Chambers of commerce, industrial and commercial concerns, travel agencies, governmental bureaus, will gladly cooperate in sending materials and detailed descriptive literature upon request. If the teacher and pupils earnestly endeavor to build up, through the Club Exchange of the Instructor, a correspondence club with schools in other states of the union and foreign countries for exchange of letters and illustrative materials, they will integrate

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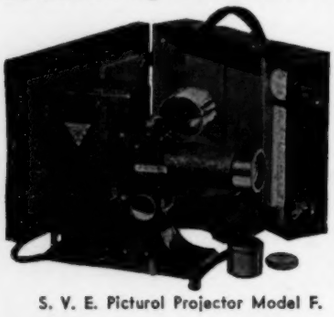

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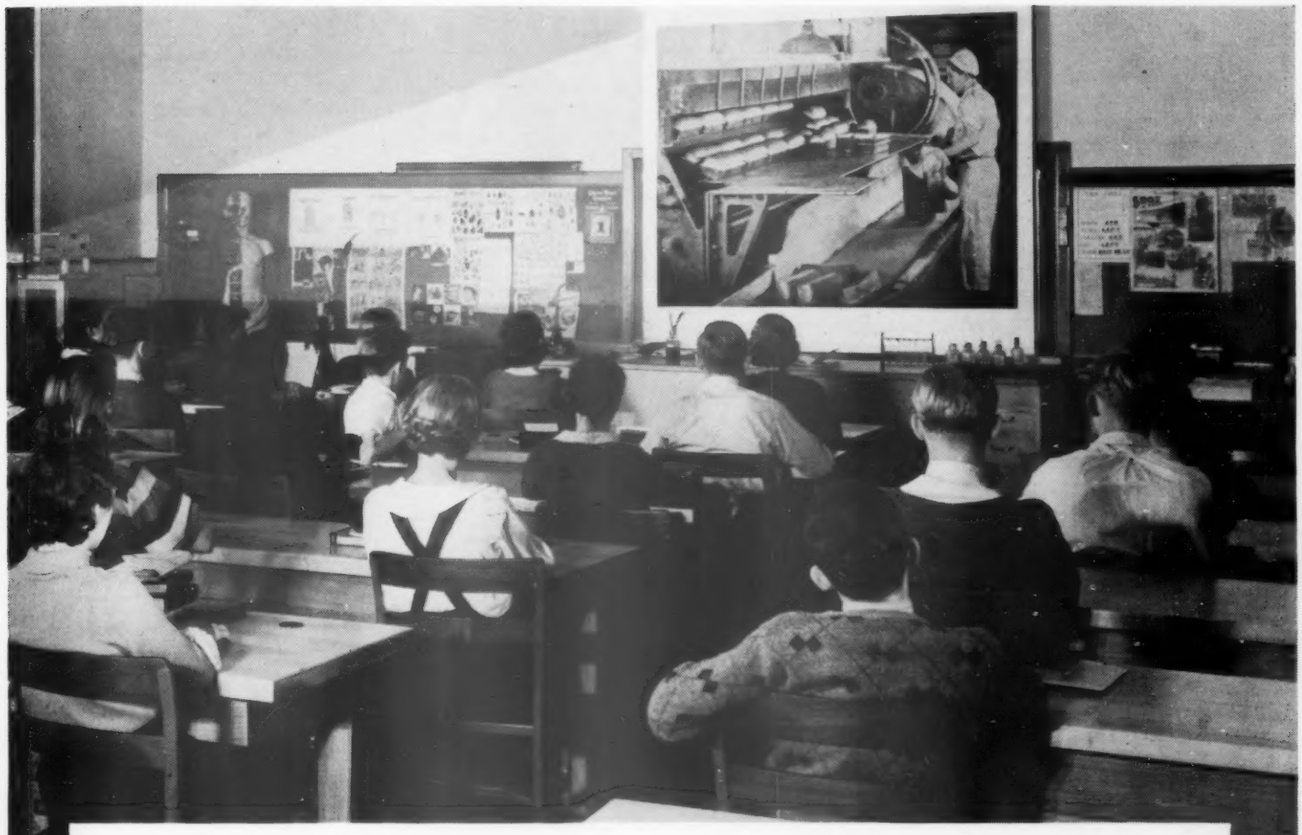

FREQUENT additions of new titles keep Eastman Classroom Films in step with the times. The collection, representing the bulk of the instructional films in use in American schools, now consists of 235 reels, classified under these general headings:

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ENGLISH	HISTORY	SCIENCE

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their entire educational program in general and receive many interesting exhibits for their museum in particular. Such activity also promotes education for world mindedness.

Visual Geography Lessons

By RHEA B. FRANK
Elementary School, Calumet City, Illl.

SIX years ago when I started to teach in Indiana, I found the hardest subject to present to the 4B children was geography. The text, "The Earth and Its People" seemed to be too difficult to read and the subject matter so remote to the experiences of the children. Our term is divided into sixweek periods—the first period presents the world as a whole to the children and a visit to the Belgian Congo; the second period, a visit to Baffin Island; and the third period, a journey to Arabian desert.

I had the feeling I was doing all the work and the children weren't getting much out of it; didn't even enjoy it. So I tried to build up the course, psychologically, with the three laws of learning as my main objective: 1. readiness, 2. exercise, and 3. effect. I can say honestly that I have never spent a happier year, have never had such enthusiasm from children and supervisor, and never had such satisfactory results in tests as this last year. Since visual aids helped me most to get these results, I shall tell in detail my modes of presentation.

1. *Readiness.* At the beginning of each period I gave an "overview" movie—that is a movie that would give a good idea of the people we were to study, their mode of living, houses, soil, climate, etc. I considered this the "mind set," as Kilpatrick puts it, and just let the movie, although a silent, talk for itself. Then we had quite a discussion. Where is this land? Why do they dress as they do, etc.? Never have I experienced a disinterested or apathetic attitude in the children. Sometimes we wrote down our questions using our language periods for this. Then we ran the movie again to search for our answers. I stopped the movie when we came to a part that answered a question and ran it over at that place, letting the child whose question was answered discuss it, and find his answer.

2. *Exercise.* Now we were ready. We read our text. I nearly always treated the text as work type reading lesson. Many times as group reading lessons, giving the best readers opportunities for research reading and individual reports. The National Geographic magazine was a great help in this, and we searched for pictures, any kind, anywhere, everywhere. A special bulletin board was preserved for all pictures and articles we could find. I chose the unit as the unit into which my whole work was to be integrated; language, reading, health, nature, and even some arithmetic. Unknown to the children but for my own satisfaction I divided the unit—each of the three—into these sub-heads, 1. food, 2. clothing, 3. shelter, 4. transportation, 5. fuel, 6. customs.

All the time we worked for a meaningful vocabulary. Slides helped a lot in this. We made nearly all of our slides and used them as guessing games. I made a few, but the children made nearly all. I had only

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a few pieces of glass, but used them over and over. For instance to cinch the word mosque, I drew a mosque on the slide, projected it, and let a child trace the outline on the blackboard. If a child knew, I let him do it, if not, I wrote the word underneath the picture. To differentiate later, I showed the slide again and had them choose correct answers. I tested often this way, using multiple choice.

I tried to make the children "why" conscious, and pictures helped in this. The heat of the Jungle, the ice and snow of Baffin Island, the arid lands of the desert affected the lives of the people and caused their food, clothing, shelter, etc to be as it is. I tried to make these people real and here pictures helped, especially ones found in current publications. I used stereographs as I would encyclopedias— as references.

3, *Effect.* From a purely selfish standpoint this has been the easiest kind of teaching. Gone has been my feeling of "doing all the work." It has been so easy to direct and guide the children's activities, especially when they have been sold on the idea. And, since learning is a natural mental process that comes from satisfaction, both the children and I have learned a great deal.

The tests I gave showed almost perfect scores, although they are the ones supplied by the manual to the text, and the same ones six years ago the children groaned over. I tested often by pictures. I numbered each and had a question on it to be answered, sometimes by one word, sometimes multiple choice, often completion.

Room length murals were made to illustrate life in the countries studied. Peak holes were made—a jungle land, a desert, and eskimo land. Twins from these lands came to visit American twins. Comparisons and contrasts were subtly made, and I feel a real understanding and sympathy was established.

At no time was there a matter of discipline. As Kilpatrick says, "If everybody saw that subject matter is good, only because it furnishes a better way of behaving—if everyone saw these things, we should have, as we ought to have, a different kind of school."

Guidance Laboratory Production

(*Concluded from page* 149)

93.) *Low angle* of plane straining at the blocks. Dust and wind churned by the propellor.

94.) *Near view* of the children intensely absorbed. The blocks are kicked away from beneath the plane. Plane slowly hovers over the camera. *Pan sideways* to children, and *up* after plane.

95.) *Near view* of children, still intensely absorbed, turning heads to watch it. *Dissolve* to:

96.) *Double exposure* of plane flying seen under the children entering bus, one by one, walking into gloom and illumined for an instant by the strong light of the sun outside. The plane *fades,* the children remaining. They *fade.*

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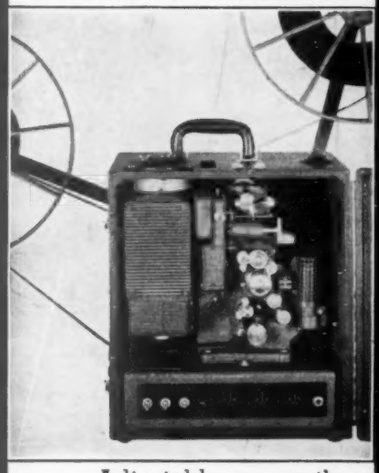

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Current Film Releases

Bell & Howell Exclusive "Universal" Features

Twenty-seven Universal feature pictures, are announced as available henceforth in 16mm. through the Bell & Howell Filmosound Library. The list includes outstanding late releases such as *The Road Back* and *Top Of The Town.* These two will become available in 16mm. only after January 1st, 1939, but the remaining twenty-five, as well as fifty short subjects, can be rented at once.

Among the features are *Counselor at Law* (John Barrymore), *Beloved* (John Boles) and *There's Always Tomorrow* (Robert Taylor). On historical topics there are such titles as *Sutter's Gold,* an epic story of California, that depicts the historic clash between miner and farmer in the days of '49, and *Little Man, What Now?* dealing with the uncertainties of post-war Central Europe. Another group of pictures was chosen for occupational background. These include *Magnificent Brute* (Steel), *Airmail, Radio Patrol, Destination Unknown* (Sea), *The Big Cage* (Animal capture and training), *Conflict* (Lumbering), *Mother's Millions* (Finance), *Gift Of Gab* (Radio). A complete list of titles as tentatively selected, will be sent free upon application to Bell & Howell.

The Bear Flag of California
(A scene from "Sutter's Gold")

Fifty short subjects include such offerings as *Going Places With Lowell Thomas,* and *Stranger Than Fiction.* Then there are three "big author" serials, *Heroes Of The West* (Peter B. Kyne), *Lost Special* (A. Conan Doyle), and *Clancy Of The Mounted* (Robert W. Service).

For schools, churches, and other social groups, it is necessary for each location to be approved by Universal at New York, through their local exchange, before film service is rendered. Where applications come from towns in which there are no theatres, or from schools for showing during school hours, there is usually little question of approvals.

Over 500 additional reels from the film library of W. O. Gutlohn are being placed into circulation this

month through the Bell & Howell Filmosound Library at Chicago. The list includes forty feature films, and a large number of short subjects, many of them of value for classroom teaching as well as auditorium showing. Subject matter fields in which this new list offers material include musical appreciation, physical culture, geography, mechanics architecture, biology, zoology, photography, aviation, physical science and a series of Children's Hour programs.

New Gutlohn Releases

Frank Buck's *Bring 'Em Back Alive*, the well-known feature picture of adventures in the Malayan jungle, is a recent addition to the Walter O. Gutlohn, Inc., 16mm sound film library. They also announce that they have just released *Austria Vanishes*, a one-reel 16mm. sound film of a timely major historical event, and *Let's Sing Again*, a musical drama starring Bobby Breen, produced by RKO.

New subjects added to the popular Bill Corum Sports series include *Inside the Ropes, Bugles from the Blue Grass, Gentleman Sports, Tomorrow's Halfback, Winter Sports, Never Catch the Rabbit*, and *Row Mister, Row*. Another series of value for school use consists of ten reels entitled *Neptune's Mysteries, Hermits of Crab-Land, Beach Masters, Winged Pageantry, Underground Farmers, Living Jewels, Swampland, Deadly Females, Forest Gangsters, and Desert Land*. These films were made by the well-known Woodward brothers of "The River" fame.

Eastin Adds Silly Symphonies

Another distributor to handle the five latest Disney Silly Symphony releases in 16mm. color. *The Grasshopper and the Aunt, The China Shop, Old King Cole, The Pied Piper and King Neptune*—is Eastin 16mm Pictures of Davenport, Iowa.

Two Erpi Pictures Announced

Two of the 24 instructional sound films listed on Erpi's 1938 production program have been completed. They are *Digestion of Foods* which will make up the sixth subject of the Human Biology series and *Dashes, Hurdles and Relays* depicting champion performances in the 100 yard, 220 yard and 440 yard events. This latter film is the first of a series dealing with track and field athletics. Additional subjects in this series will be forthcoming.

Museum of Modern Art Gets British Films

The Museum of Modern Art Film Library, New York, has added thirteen British documentary films, produced in England during the last three years, to its collection. The films were brought here by Paul Rotha, a leader in the movement in England.

The films are, *Air Outpost, Children at School, Enough to Eat, Eastern Valley, For All Eternity, Granton Trawler, Housing Problems, Night Mail, Roadways, The Smoke Menace, Today We Live, We Live in Two Worlds and Weather Forecast.*

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Arsene Lupin Returns (Douglas, William, Bruce) (MGM) Famous gentleman crook, long supposed dead but living honestly and incognito, deftly recovers jewel stolen from eminent family whose daughter interests him. Smooth, suspenseful, intricate mystery-romance, with good dialog, comedy and no gore. 4-12-38
(A) (Y) **Very good of kind** (C) Beyond them

Battle of Broadway (McLaglen, Donlevy) (Fox) Raucous, uncouth farce, reverting to years ago. Two rowdy roughnecks and their doddering boss, supposedly "American Legionnaires," bawl, wrangle, doublecross each other over "dames", smash crockery, furniture and heads. Asylum wedding for climax. Glorified crudity. 4-26-38
(A) Crude (Y) (C) Certainly not

Bulldog Drummond's Peril (Howard, Barrymore) (Para) A scientist's formula for making synthetic diamonds, sought by rival crooks, starts chain of hectic events, including murder, explosions and hand-to-hand combats as hero chases criminals from London to Switzerland and back. Involved and overdone thriller. 5-3-38
(A) Mediocre (Y) Exciting (C) No

College Swing (Burns, Allen, Raye, Hope, Horton, etc.) (Para) Delirium of vaudeville horseplay in present-day taste, with meaningless music and dance desperately Africanized; unrelieved by sense or sanity save some real comedy by Gracie. Great fun to many; others will think it artistically demoralizing. 4-19-38
(A) Depends on taste (Y) (C) Amus. but doubtful

Condemned Women (Eilers, Shirley, Philip Duncan) (RKO) Depressing story of women in prison, bitterness, jailbreak, women shooting women—but wise warden, nice young doctor, kindly judge manage romantic but illogical "happy ending." Somewhat informative on prison life but slight value otherwise. 4-26-38
(A) Unpleasant (Y) (C) By no means

Dance of the Virgins (Music accompaniment and titles) (Bennett Pictures) Sedate, charming little romantic tragedy, made in Bali with native actors, in Technicolor. Highly informative on Bali's lovely landscape, flowers, customs, elaborate temple dances, and interesting Balinese ethics. 4-12-38
(A) **Novel** (Y) **Good** (C) Too mature

Doctor Rhythm (Crosby, Carlisle, Devine, Lillie) (Para) Crazy combination of hilarious burlesque, slapstick and romance. Bing is a Doctor (!) masquerading as a policeman and hired as bodyguard to protect heroine, infatuated with fortune-seeking crook. Lillie's comic antics share honors with Bing's crooning. 5-3-38
(A) Dep. on taste (Y) Prob. amus. (C) Not best

Dybbuk, The (Polish Cast) (Made in Warsaw) (Yiddish, fine English titles) Impressive picture in stately tempo, expertly acted, of a tragic and beautiful love affair among humble, devout people. Strange mingling of tradition, religion, naive faith and superstition. Long, slow, difficult, but artistic and rich in human values. 5-3-38
(A) **Unusual** (Y) and (C) Entirely beyond them

Everybody's Doing It (Preston Foster, Sally Eilers) (RKO) Brainless farce about loving heroine trying to inspire spineless puzzle-contest artist (heavily played by Foster) to work. Racketeers sell answers, kidnap hero, etc. Made comic (?) by reeling drunks, face-slappings, frying-pan knockouts, etc. 4-19-38
(A) Stupid (Y) Worthless (C) No

Fools for Scandal (Lombard, Gravet) (Warn) Penniless French marquis, incognito, chases and is chased by whimsical American movie queen through Paris. Plot and action thin and flimsy but merrily played. Notable charm and cleverness in two roles. Ralph Bellamy sadly miscast. Some rhymed dialog, alas! 4-26-38
(A) Good of kind (Y) Perhaps (C) Hardly

Gaiety Girls, The (Patricia Ellis, Jack Hulbert) (U.A.) Mildly diverting British-made comedy with mistaken identity theme. Chance incident links unsuspecting chorus-girl's name with that of millionaire banker whom she's never met. When she does, she thinks him a reporter, starting merry complications and romance. 5-3-38
(A) Perhaps (Y) Fair (C) Doubtful int.

Her Jungle Love (Dorothy Lamour, Ray Milland, Lynne Overman) (Para) Fantastic absurdities, silly falsities, weird efforts at bizarre thrills, all in Technicolor! Aviators, natives, African animals on South Sea islet, maudlin romance, grewsome deaths and earthquake. Eye-filling, expensive, stupid. 4-19-38
(A) Depends on taste (Y) No (C) No

Hollywood Stadium Mystery (Neil Hamilton, Evelyn Venable) (Repub) Mildly puzzling and agreeably suspenseful little thriller, not unduly violent. Writer-heroine and district-attorney-hero collaborate to solve queer death of pugilist in ring and furnish romance. The latter is more emphasized than the killings. 4-26-38
(A) Hardly (Y) (C) Fairly good

International Settlement (George Sanders, Dolores del Rio) (Fox) Grim Shanghai-war melodrama. Soldier-of-fortune hero, tangled in million-dollar munition-smuggling, runs afoul of tough "agents." Wounded, he thinks heroine betrayed him but she gives blood to save him and all is well. Acting ordinary. 4-19-38
(A) Depends on taste (Y) No (C) No

Joy of Living (Irene Dunne, Fairbanks, Jr.) (RKO) Fast, merry romantic comedy in current vogue. Irene delightful as hard-working stage star rescued from selfish, parasitic family by gay hero. Many uproarious sequences, and much beer, involved in her emancipation. Sophisticated but probably harmless. 5-3-38
(A) **Entertaining** (Y) Doubtful (C) Unsuitable

King of the Newsboys (Lew Ayres, Ann Sheridan) (Republic) Initial human interest in slum hero and heroine turns to crude melodrama of shady ethics. She turns racketeer's mistress while ne'er-do-well hero wins swift riches from news stands, goes broke—and they are humble and happy again. 4-12-38
(A) **Mediocre** (Y) No (C) No

Love on a Budget (Prouty, Byington, Shirley Deane) (Fox) Not up to standard of previous JONES FAMILY films. Entertainment and human values largely obscured by artificial situations growing out of conflict between bride and groom over money matters. Climax especially unconvincing. 5-3-38
(A) Hardly (Y) Fair (C) No interest

Lenin in October (Russian, English titles) (Amkino) Vivid, generally convincing picture of the real Lenin and his master coup of October 1917. Complex preparations in dingy, primitive quarters end in triumphant storming of Winter Palace and full victory. Well done despite crudities. Usual propaganda. 4-26-38
(A) Good of kind (Y) (C) Undesirable

Maid's Night Out (Joan Fontaine, Allan Lane) (RKO) Inane but harmless farce. Rich man's son scorns job in father's dairy but supposed maid on milkman's route changes his mind. Stupidly slow start, bawled dialog, mediocre acting outweigh rather amusing and original "chase" climax. 4-12-38
(A) Poor (Y) (C) Perhaps amusing

Patient in Room 18 (Patrick Knowles, Ann Sheridan) (Warner) Detective poses as patient in hospital to solve $100,000 radium theft. Old stock devices for thrill and suspense. Disjointed action, clumsy continuity, heavy attempt to be funny and amateurish acting make poor mystery-melodrama. 4-12-38
(A) Poor (Y) Mediocre (C) No

Port of Missing Girls (Harry Carey, Judith Allen) (Monogram) Nice little San Francisco cabaret singer, involved in gangster killing, finds self on tramp steamer. Kindly captain hides her in friendly Shanghai honky-tonk. Gangster-smuggler has designs on her but wild, ridiculous fight saves day. 4-19-38
(A) Dull (Y) Poor (C) No

Prison Nurse (H. Wilcoxon, Marian Marsh) (Repub) Unpleasant, thrilling melodrama. Bitter young Doctor, serving jail sentence for mercy death, goes through prison typhoid epidemic, jailbreak, wild ambulance chase and murder indictment before cleared by loyal nurse. Waste of all concerned. 5-3-38
(A) Poor (Y) and (C) Certainly not

The Rat (Anton Walbrook, Ruth Chatterton) (RKO) Glamorous Parisian thief, guardian of young heroine, is briefly dazzled by rich adventuress. Her cast-off roue turns to heroine, who shoots him. Spectacular trial brings startling results and happy ending. Rather good thriller. Made in Paris. 4-19-38
(A) Good of kind (Y) Mature (C) No

Reckless Living (Nan Grey, Robt. Wilcox) (Univ) Human, rather amusing little racetrack story with betting the main theme. Hero heads band of track followers who generally pick wrong horses, quits when he wins stake but gives it to needy friend and takes trainer job and a wife. Well directed and acted. 5-3-38
(A) Passable (Y) Hardly suitable (C) No

Scandal Street (Lew Ayres, Louise Campbell) (Para) Innocent heroine, waiting to marry engineer-hero away on foreign assignment, is involved in petty scandal and murder charge by small-town gossips, aided by brattish child liar. Feeble in plot, acting and direction, with dramatic-value nil. 4-12-38
(A) Poor (Y) Poor (C) No

Storm in a Teacup (Good British cast) (G-B) (U A) Plans of domineering provost of little Scottish town seriously changed by engaging dog and his pals, with help from keen journalist and provost's daughter. Dramatically uneven, confusing, conclusion arbitrary, but mostly thoroughly amusing. 4-19-38
(A) Novel (Y) Fairly good (C) Fair

Swing Your Lady (Bogart, Fazenda, McHugh, Jenkins) (Warner) Hilarious nonsense farce with good cast, centered on crude romance of super-dumb wrestler with woman blacksmith. Features burlesque wrestling and vaudeville Weavers in hill-billy music. Slapstick numbskullery made as funny as possible. 4-12-38
(A) Depends on taste (Y) (C) Doubtful value

Tarzan's Revenge (Glenn Morris, Eleanor Holm) (Principal) Usual formula, reasonable thrills. Evanston family on safari after zoo specimens. Daughter (who swims better than she acts) meets Tarzan (same) who saves her from beasts and from lewd "Indian Prince" with grand palace in heart of Africa. 4-12-38
(A) Hardly (Y) (C) Probably good

Test Pilot (Gable, Loy, S. Tracy) (MGM) Powerful picture, superb technique, with three notable roles expertly done. By turns clever, delightful, stirring, nerve-wracking. Some tense dramatic moments of real life, some unreal. Wholesale drunkenness seems vital to aviation. Vast appeal, uncertain effect. 4-26-38
(A) **Outstanding** (Y) Doubtful (C) No

Tip-Off Girls (Evelyn Brent, Larry Crabbe) (Par) Fast, exciting, highly embroidered gangster-G-Man thriller, with truck-hijacking made practically a major U. S. industry! Usual ingredients of sinister "big boss", tough henchmen, brutal killings, G-man activities, chases, and final hectic climax. 4-26-38
(A) Hardly (Y) Better not (C) No

When the G-Men Step In (Don Terry, Jacqueline Wells) (Columbia) Attractive counterfeit-printing racketeer vs. his less engaging brother, a loyal G-Man. Former falls heroically before gang guns, so latter wins heroine. Feebly acted melodrama, with sympathy misdirected and slight character interest. 4-19-38
(A) Elementary (Y) Hardly (C) No

Wide Open Faces (Joe E. Brown) (Colum) Joe's usual comedy antics largely futile in story inferior to his previous ones. Honest small-town soda clerk, some obvious crooks, gangster molls, lost money, abandoned hotel, and stupid chase for climax. Not good for Joe's reputation. 4-26-38
(A) Poor (Y) Poor (C) Hardly

Among The Producers

General Science Film Slides

As a companion to its physics and chemistry series, Visual Sciences of Suffern, New York, now offers a new film slide series in general science, consisting of the following eleven films, averaging forty frames each: *Water, Air, Levers, Inclined Planes, Pulleys, Energy, Heat, Sound, Light, Magnetism, Electricity.*

While intended primarily for junior high schools, the new series will also be found of value in grade schools, where the teaching of science is begun. In addition, these films may be used effectively in high school physics classes as a memory refreshing preface to the study of topics in more advanced form. No special manual is needed with the film slides, since all the frames are self-explanatory.

Kodak 16mm. Enlarger

A compact new enlarger for making black-and-white negatives from single frames of 16mm. motion pictures is announced from Rochester by the Eastman Kodak Company. Negatives may be made quickly and simply from either black-and-white film or Kodachrome, and from these enlarged negatives both contact prints and greater enlargements are possible. Owing to the extremely fine grain of laboratory-processed reversal film, and the absence of silver grain in Kodachrome, the enlarged negatives are claimed to be of excellent technical quality.

The enlarger is of particular value to the amateur movie maker who possesses no darkroom or other facilities for making enlarged "stills". It permits the making of a series of negatives in rapid succession, and eliminates the need of immediate processing. The film can be developed at leisure by the maker, or sent to a photo-finisher. One of the major virtues of the new device is that it facilitates the making of enlarged "stills" at the time the movie reel is edited.

Making enlargements from 16mm. frames

The enlarger is constructed in the form of a folding Kodak, and is loaded and operated in much the same way. A film gate, mounted before the enlarger lens, has a mask opening the exact size of the 16mm. frame. The film is positioned over this opening, between guide pins. A locating pin engages one perforation, keeping the film in alignment. After positioning, the cover of the gate is closed, and a brief exposure made by incandescent light. Photoflood light is most suitable for enlarged negatives from Kodachrome. The enlarger loads with 616 size Kodak Film, and eight negatives are obtained from each roll, each negative 2½ by 3⅜ inches. Full operating instructions are included with each enlarger. The retail price is $15.

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During The
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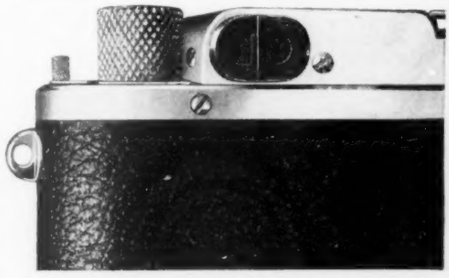
145 E. 23rd ST., East of LEXINGTON AVE., NEW YORK
GRAMERCY 5-3840 GEO. A. TURKEL, MGR.

Leica Model G-1938

The illustration shows a close-up of the viewfinder and rangefinder eyepieces of the new Leica camera, Model G-1938, announced in the April issue of the EDUCATIONAL SCREEN. The model is equipped with Leitz Xenon f:1.5 speed lens and Rapid Winder.



Central Photographic Almanac

A new 128-page Photographic Almanac and Bargain Book of Cameras and Supplies has been issued by Central Camera Company, Chicago. A special month-by-month illustrated Photographic Calendar, a handy Exposure Table, Film and Plate Speed Table Guide to Correct Exposure and other hints for better pictures, are features, in addition to descriptions of all the latest developments in photography. The Almanac is available free upon request.

HERE THEY ARE

A Trade Directory for the Visual Field

FILMS

Akin and Bagshaw, Inc. (6)
1425 Williams St., Denver, Colo.

Bell & Howell Co. (6)
1815 Larchmont Ave., Chicago
(See advertisement on inside back cover)

Bray Pictures Corporation (3, 6)
729 Seventh Ave., New York City

Cine Classic Library (5)
1041 Jefferson Ave., Brooklyn, N. Y.
(See advertisement on page 166)

Eastin 16 mm. Pictures (6)
Davenport, Ia.
(See advertisement on page 166)

Eastman Kodak Co. (1, 4)
Rochester, N. Y.
(See advertisement on outside back cover)

Eastman Kodak Co. (1, 4)
Teaching Films Division
Rochester, N. Y.
(See advertisement on page 165)

Eastman Kodak Stores, Inc. (6)
1020 Chestnut St., Philadelphia, Pa.
606 Wood St., Pittsburgh, Pa.

Edited Pictures System, Inc. (6)
330 W. 42nd St., New York City

Erpi Classroom Films, Inc. (2, 5)
35-11 35th Ave., Long Island City, N. Y.

Films, Inc. (6)
330 W. 42nd St., New York City
64 E. Lake St., Chicago
925 N. W. 19th St., Portland, Ore.

Garrison Films (3, 6)
1600 Broadway, New York City

General Films, Ltd. (3, 6)
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Walter O. Gutlohn, Inc. (6)
35 W. 45th St., New York City
(See advertisement on page 161)

Harvard Film Service (3, 6)
Biological Laboratories,
Harvard University, Cambridge, Mass.

Guy D. Haselton's Travelettes (1, 4)
7901 Santa Monica Blvd., Hollywood, Cal.

Howard Hill Motion Picture Service (5)
280 Scenic-Piedmont, Oakland, Cal.
Chamber of Commerce Bldg.,
Los Angeles, Cal.

J. H. Hoffberg Co., Inc. (2, 5)
729 Seventh Ave., New York City

Ideal Pictures Corp. (3, 6)
28 E. Eighth St., Chicago, Ill.
(See advertisement on page 166)

Institutional Cinema Service, Inc. (3, 6)
130 W. 46th St., New York City

Lewis Film Service (6)
105 E. 1st St., Wichita, Kan.
(See advertisement on page 166)

The Manse Library (4, 5)
2439 Auburn Ave., Cincinnati, O.
(See advertisement on page 166)

Pinkney Film Service Co. (1, 4)
1028 Forbes St., Pittsburgh, Pa.

United Projector and Films Corp. (1, 4)
228 Franklin St., Buffalo, N. Y.

Visual Education Service (6)
131 Clarendon St., Boston, Mass.

Visual Instruction Supply Corp. (6)
1757 Broadway, Brooklyn, N. Y.
(See advertisement on page 161)

Wholesome Films Service, Inc. (3, 4)
48 Melrose St., Boston, Mass.

Williams, Brown and Earle, Inc. (3, 6)
918 Chestnut St., Philadelphia, Pa.

Y.M.C.A. Motion Picture Bureau (1, 6)
347 Madison Ave., New York City
19 S. LaSalle St., Chicago

MOTION PICTURE MACHINES and SUPPLIES

The Ampro Corporation (6)
2839 N. Western Ave., Chicago
(See advertisement on page 146)

Bell & Howell Co. (6)
1815 Larchmont Ave., Chicago
(See advertisement on inside back cover)

Central Camera Co. (6)
230 S. Wabash Ave., Chicago
(See advertisement on page 161)

Eastman Kodak Co. (6)
Rochester, N. Y.
(See advertisement on outside back cover)

Eastman Kodak Stores, Inc. (6)
1020 Chestnut St., Philadelphia, Pa.
606 Wood St., Pittsburgh, Pa.

General Films, Ltd. (3, 6)
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Herman A. DeVry, Inc. (3, 6)
1111 Armitage St., Chicago
(See advertisement on page 142)

Howard Hill Motion Picture Service (5)
280 Scenic-Piedmont, Oakland, Cal.
Chamber of Commerce Bldg.,
Los Angeles, Cal.

Holmes Projector Co. (3, 6)
1813 Orchard St., Chicago

Ideal Pictures Corp. (3, 6)
28 E. Eighth St., Chicago
(See advertisement on page 166)

Institutional Cinema Service, Inc. (3, 6)
130 W. 46th St., New York City

International Projector Corp. (3, 6)
90 Gold St., New York City
(See advertisement on inside front cover)

RCA Manufacturing Co., Inc. (5)
Camden, N. J.
(See advertisement on page 159)

S. O. S. Corporation (3, 6)
636 Eleventh Ave., New York City

Sunny Schick National Brokers (3, 6)
407 W. Wash. Blvd., Ft. Wayne, Ind.

United Projector and Films Corp. (1, 4)
228 Franklin St., Buffalo, N. Y.

Universal Sound Projector (5)
1921 Oxford St., Philadelphia, Pa.
(See advertisement on page 167)

Victor Animatograph Corp. (6)
Davenport, Iowa
(See advertisement on page 145)

Visual Education Service (6)
131 Clarendon St., Boston, Mass.

Williams, Brown and Earle, Inc. (3, 6)
918 Chestnut St., Philadelphia, Pa.

PICTURES and PRINTS

Colonial Art Company
1336 N. W. First St., Oklahoma City, Okla.

Informative Classroom Picture Ass'n.
48 N. Division Ave., Grand Rapids, Mich.

SCREENS

Da Lite Screen Co.
2717 N. Crawford Ave., Chicago
(See advertisement on page 169)

Eastman Kodak Stores, Inc.
1020 Chestnut St., Philadelphia, Pa.
606 Wood St., Pittsburgh, Pa.

Institutional Cinema Service, Inc.
130 W. 46th St., New York City

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

SLIDES and FILM SLIDES

Conrad Slide and Projection Co.
709 E. Eighth St., Superior, Wis.

Eastman Educational Slides
Johnson Co. Bank Bldg.,
Iowa City, Ia.

Edited Pictures System, Inc.
330 W. 42nd St., New York City

Ideal Pictures Corp.
28 E. Eighth St., Chicago, Ill.
(See advertisement on page 166)

Keystone View Co.
Meadville, Pa.
(See advertisement on page 144)

Radio-Mat Slide Co., Inc.
1819 Broadway, New York City
(See advertisement on page 166)

Society for Visual Education
327 S. LaSalle St., Chicago, Ill.
(See advertisement on page 164)

Teaching Aids Service
Jamaica Plain, Mass.
(Slide-making Material)
(See advertisement on page 167)

Visual Education Service
131 Clarendon St., Boston, Mass.

Visual Sciences
Suffern, New York
(See advertisement on page 166)

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

STEREOGRAPHS and STEREOSCOPES

Herman A. DeVry, Inc.
1111 Armitage St., Chicago
(See advertisement on page 142)

Keystone View Co.
Meadville, Pa.
(See advertisement on page 144)

STEREOPTICONS and OPAQUE PROJECTORS

Bausch and Lomb Optical Co.
Rochester, N. Y.
(See advertisement on page 141)

Eastman Kodak Stores, Inc.
1020 Chestnut St., Philadelphia, Pa.
606 Wood St., Pittsburgh, Pa.

General Films Ltd.
1924 Rose St., Regina, Sask.
156 King St., W. Toronto

Keystone View Co.
Meadville, Pa.
(See advertisement on page 144)

Society for Visual Education
327 S. LaSalle St., Chicago, Ill.
(See advertisement on page 164)

Spencer Lens Co.
19 Doat St., Buffalo, N. Y.
(See advertisement on page 163)

Williams, Brown and Earle, Inc.
918 Chestnut St., Philadelphia, Pa.

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(1) indicates firm supplies 35 mm. silent.
(2) indicates firm supplies 35 mm. sound.
(3) indicates firm supplies 35 mm. sound and silent.
(4) indicates firm supplies 16 mm. silent.
(5) indicates firm supplies 16 mm. sound-on-film.
(6) indicates firm supplies 16 mm. sound and silent.

Continuous insertions under one heading, $1.50 per issue; additional listings under other headings, 75c each.